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ABSTRACT

The Profile of American Youth study, sponsored by the Department of Defense and the Military Services, in cooperation with the Department of Labor, is documented in this report. The principal objectives of the research project were to assess the vocational aptitudes of a nationally representative sample of youth 18 through 23 years of age and to develop current national norms for the Department of Defense enlistment test, the Armed Services Vocational Aptitude Battery (ASVAB). The Armed Forces Qualification Test (AFQT) was used as an index for comparing the test performance of civilian and military groups. Comparisons are between the 1980 youth group and the World War II reference population, military accessions, and subgroups within the youth population on the basis of age, sex, race, education level, socioeconomic status, and geographic region. The results of this study will be useful in addressing the issue of the compatibility between complex and demanding military weapon systems and personnel capabilities. That is, if a national emergency necessitates the reintroduction of conscription, military policymakers must be able to establish entrance standards and induction quotas that are compatible with manpower resources. To plan for possible mobilization, the Department of Defense must be able to relate attributes, abilities, and other characteristics of the national youth population to requirements for military manpower. (Author/GK)

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Profile of American Youth

1980 NATIONWIDE ADMINISTRATION OF THE
ARMED SERVICES VOCATIONAL APTITUDE BATTERY

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FOREWORD

The Profile of American Youth is unprecedented. It marks the first time that a vocational aptitude battery has been given to a nationally representative sample. Useful as such information would be for many purposes, up to this time research has not been conducted because of the great difficulty involved in obtaining data on such a scale. The present study resulted from the partnership of two Government departments and several agencies, as well as the combined efforts of many individuals.

This report was prepared by a working group under the leadership of Drs. W.S. Sellman and Zahava D. Doering, Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics). Members of the group were Mr. Louis A. Ruberton, Headquarters, Department of the Army; Dr. Hilda Wing, Army Research Institute for the Behavioral and Social Sciences; Mr. Charles R. Hoshaw, Office of the Chief of Naval Operations; Dr. Martin F. Wiskoff, Navy Personnel Research and Development Center; Major John R. Welsh, Air Force Manpower and Personnel Center; Dr. Lonnie D. Valentine, Jr., Air Force Human Resources Laboratory; Major Randall R. Harris, Headquarters, U.S. Marine Corps; and Dr. Milton H. Maier, Center for Naval Analyses. Each of these individuals has contributed to improved methods in personnel research and management for many years.

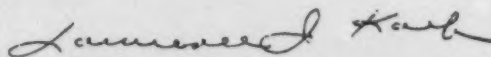
Policy oversight for the development of the report was provided by a joint-Service steering group. Members of the group, representing the Department of Defense and the Military Services, included Lieutenant General R. Dean Tice and Dr. G. Thomas Sicilia, Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics); Brigadier General D.W. Connelly, Headquarters, Department of the Army; Rear Admiral J.R. Hogg, Office of the Chief of Naval Operations; Major General W.R. Usher, Headquarters, U.S. Air Force; Brigadier General A. Lukeman, Headquarters, U.S. Marine Corps; and Rear Admiral B.T. Hacker, Military Enlistment Processing Command. Their insights and efforts in behalf of this study are appreciated.

In addition, under contract to the Department of Defense, several military manpower experts assisted with data analysis and data presentation. The contributions of Dr. Brian K. Waters, Dr. Mark J. Eitelberg, and Ms. Janice H. Laurence of the Human Resources Research Organization (HumRRO) are gratefully acknowledged.

Computer support was provided by the staff of the Defense Manpower Data Center. The able and timely support of Ms. Helen T. Hagan and Mr. Leslie W. Willis in fulfilling numerous programming and analytic requests was invaluable.

The sample design and all aspects of data collection, including test administration, were the responsibility of the National Opinion Research Center (NORC). Appreciation is due to Ms. Celia E. Homans, Ms. Mary Cay Burich, Dr. Harold A. McWilliams, and Dr. Martin R. Frankel of NORC, and to Dr. R. Darrell Bock at the University of Chicago.

Finally, a debt of gratitude is owed to Dr. A.J. Martin, who was the Director for Accession Policy, Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) during the planning and implementation of most of the effort. His belief in its importance as well as his coordination of financial resources and organizational support made this study a reality.



Lawrence J. Korb
Assistant Secretary of Defense
(Manpower, Reserve Affairs, and Logistics)

**PROFILE OF AMERICAN YOUTH:
1980 NATIONWIDE ADMINISTRATION OF THE
ARMED SERVICES VOCATIONAL APTITUDE BATTERY (ASVAB)**

- EXECUTIVE SUMMARY -

BACKGROUND

The Profile of American Youth study, sponsored by the Department of Defense and the Military Services, in cooperation with the Department of Labor, is documented in this report. The principal objectives of the research project were to assess the vocational aptitudes of a nationally representative sample of youth and to develop current national norms for the Department of Defense enlistment test, the Armed Services Vocational Aptitude Battery (ASVAB). The results of this study will also be useful in addressing the issue of the compatibility between complex and demanding military weapon systems and personnel capabilities.

For the past four decades, the aptitude levels of military recruits have been referenced statistically to the extensive testing of adult males that took place during World War II. Recently, both the Department of Defense and Congress have questioned the appropriateness of using the World War II "reference population" as a primary basis for interpreting the enlistment test scores of today's recruits. Thus, it was decided in 1979 that the vocational aptitudes of current youth should be examined to gain a better understanding of the quality and representativeness of new enlistees.

An aptitude profile of current youth will provide a basis for evaluating recruiting results. In addition, if a national emergency necessitates the reintroduction of conscription, military policymakers must be able to establish entrance standards and induction quotas that are compatible with manpower resources. To plan for possible mobilization, the Department of Defense must be able to relate attributes, abilities, and other characteristics of the national youth population to requirements for military manpower.

METHODOLOGY

The Department of Defense contracted with the National Opinion Research Center (NORC) of the University of Chicago to administer the ASVAB during July through October 1980 to a nationally representative sample of nearly 12,000 young men and women. The sample was already under study in the National Longitudinal Survey (NLS) of Youth Labor Force Behavior, sponsored by the Departments of Labor and Defense.

The young people tested were representative of all youth in the United States, ages 16 to 23. The sample contained approximately equal proportions of males and females, including individuals from urban and rural areas, and from all major census regions. The analyses conducted in the profile study focused upon young people who were 18 through 23 years of age at the time of testing.

The test used to obtain aptitude data on the national youth population was the ASVAB. The ASVAB is used by the Military Services to determine eligibility for enlistment and qualification for assignment to specific military jobs. Four ASVAB subtests are combined to form the Armed Forces Qualification Test (AFQT), a general measure of trainability and the primary criterion of enlistment eligibility.

The AFQT was used as an index for comparing the test performance of civilian and military groups. The analyses reported here include comparisons of the 1980 youth population with the World War II reference population and with military accessions, as well as comparisons of subgroups within the youth population on the basis of age, sex, race/ethnicity, level of education, socioeconomic status, and geographic region.

RESULTS

Comparison of the World War II Reference Population with the 1980 Youth Population

- A comparison of the AFQT category distributions of the 1980 male youth population and the World War II reference population indicated that 40 percent of the 1980 group were in Categories I and II (the above-average categories), compared with 36 percent of the reference population. The proportion in the average range (AFQT Category III) was higher for the World War II group than for the 1980 population of male youth. There was no appreciable difference between the proportions of contemporary male youth and the reference population who scored in the below-average range (AFQT Categories IV and V). The median AFQT percentile score for 1980 male youth (18 through 23 years) was 53, compared with 50 for the World War II population of adult males.

Comparison of Military Accessions with the 1980 Youth Population

- AFQT scores of the 1980 youth population were compared with those of FY 1981 DoD accessions of the same ages. In general, FY 1981 military recruits scored higher on the AFQT than did contemporary youth. Approximately the same proportions of individuals with above-average scores were found in the 1980 youth population and among accessions. However, the proportion of accessions scoring in the average range was considerably higher than the comparable proportion of youth in the general population. In FY 1981, 80 percent of nonprior service accessions received scores in AFQT Categories I-III, compared with 69 percent of the 1980 youth population. The median AFQT score for all FY 1981 recruits was 52, and the median for 1980 profile youth was 51.
- The proportion of FY 1981 Army accessions in the above-average AFQT categories was 14 percentage points below the comparable proportion in the 1980 youth population. Approximately the same proportion of Army accessions and contemporary youth scored in the below-average categories. The median AFQT score for FY 1981 nonprior service accessions in the Army was 41.
- Comparison of AFQT scores of the 1980 youth population with FY 1981 nonprior service accessions, by selected demographic characteristics, showed variations in the representativeness of the sexes and racial/ethnic groups. In general,

FY 1981 accessions of both sexes scored higher on the AFQT than did their counterparts in the profile study population. FY 1981 minority recruits also scored significantly higher than minority youth in the general population.

- A comparison of the educational distributions of FY 1981 military accessions with the 1980 profile population showed that a greater proportion of the military recruits than civilian youth were high school graduates. Approximately equal proportions of white recruits and white youth in the 1980 profile population had graduated from high school. Black and Hispanic recruits had a much higher proportion of high school graduates than comparable minority subgroups in the general population.

1980 Youth Population Subgroup Analyses

- The average (mean) AFQT percentile scores of the 1980 youth population increased with age. Estimates of reading grade level also increased with age.
- The average AFQT percentile scores of males and females were similar. Average test scores on the aptitude/composites differed. Males scored higher than females on the Mechanical, General, and Electronics composites; females outscored males on the Administrative composite.
- The average AFQT score for whites was considerably higher than those of either Hispanics or blacks. This pattern of racial/ethnic group performance was the same on estimates of reading grade level and, for similar sexes, on the four Service aptitude composites.
- AFQT percentile scores showed a clear relationship to levels of educational attainment. Non-high school graduates had the lowest average scores, and high school graduates had the highest scores. GED recipients scored between these two groups.
- Average AFQT percentile scores were highest for youth in the New England and West North Central regions of the country, and lowest in the three southern regions. Youth in the East North Central, Middle Atlantic, Mountain, Pacific, and West South Central regions scored at approximately the level of the overall population median.

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**PROFILE OF AMERICAN YOUTH:
1980 Nationwide Administration of the
Armed Services Vocational Aptitude Battery**

Section 1

INTRODUCTION

Discussions of present or future policies for procuring military manpower consider ways in which individuals are selected for service, assigned to military jobs, and trained to perform those jobs. Philosophically, there is consensus that threshold enlistment standards are essential for manning an effective military. Beyond that broad agreement, the type of enlistment standards (i.e., medical, moral, educational, and aptitude) and the levels at which they should be established are topics for ideological, legal, scientific, and practical debate.

Whatever enlistment standards are set, their operational effectiveness depends on how well prospective recruits are evaluated for possible military service. The Armed Forces have devoted considerable effort to developing reliable and valid methods for screening persons before they enter military service. The focus of this effort has been on developing tests that measure the aptitudes of individuals.¹ Historically, aptitudes have been defined as measures of trainability for various military jobs.

Aptitude levels within the military have been referenced statistically to the extensive testing of adult males that took place during World War II. For more than 35 years, this World War II "reference population" has been the baseline for comparing aptitudes of military recruits. Some years ago, both the Department of Defense (DoD) and the Congress questioned whether it was appropriate to use the World War II reference population as the sole basis for interpreting today's enlistment test scores. It was decided that the contemporary youth population should be examined to improve understanding of the quality and representativeness of new enlistees, and of the characteristics of the population from which they come.

An aptitude profile of current youth would provide a basis for screening recruiting prospects and evaluating recruiting results. The Department of Defense should be able to compare the characteristics of today's youth population with DoD requirements for military manpower. Information is also needed for mobilization planning. If a national emergency made it necessary to resume conscription, the Services must be able to meet their personnel needs by establishing entrance standards compatible with the available resources of manpower. Decisions on who should be drafted, or permitted to volunteer, need to be based on accurate knowledge of the aptitudes of contemporary youth.

In addition, such a profile would provide a basis for addressing the issues of compatibility of military hardware and the personnel who will use that hardware. Examination of the trends in aptitude test scores in the general youth population, for example, could help determine whether weapon systems, vehicles, communication systems, and military equipment in general, are becoming too complicated and demanding for military personnel to operate efficiently.

¹ In describing types of tests, aptitude and achievement are terms used almost interchangeably. Both kinds of tests measure "developed abilities" and are intended to predict what a person could accomplish with training. A more detailed discussion of this issue can be found in Wigdor, A.K., & Garner, W.R. *Ability testing: Uses, consequences, and controversies* (Parts I & II). Washington, D.C.: National Academy Press, 1982.

THE 1980 PROFILE OF AMERICAN YOUTH¹

The Profile of American Youth study was designed to assess the vocational aptitudes of young people, ages 16 to 23, and to develop a new reference population against which scores on DoD enlistment tests could be interpreted. To achieve these goals, DoD contracted with the National Opinion Research Center (NORC) of the University of Chicago to administer the current enlistment test to a nationally representative sample of about 12,000 young men and women. This sample was already in existence for the five-year National Longitudinal Survey of Youth Labor Force Behavior being conducted under the auspices of the Department of Labor.

Beyond their value to military manpower planning, the aptitude profiles from a national sample of young people are expected to be a significant contribution to the body of scientific information available to meet a wide range of needs in operational and research activities. Such aptitude profiles have not been previously available because of the difficulty and expense of obtaining representative data on a nationwide basis.

APTITUDE TESTING IN DoD

The Armed Services Vocational Aptitude Battery

The enlistment test used in the 1980 aptitude profile study was the Armed Services Vocational Aptitude Battery (ASVAB). ASVAB was introduced 1 January 1976 as the single DoD test to replace the various aptitude test batteries then in use by each Service. Replacement forms were developed in 1980 and implemented 1 October. The 1980 version (Form 8A) of ASVAB was administered in this study.

ASVAB scores serve two important purposes in the enlistment process. First, they help determine an individual's eligibility for enlistment. Second, they are used to establish the individual's qualifications for assignment to specific military jobs.

The ASVAB consists of 10 subtests, as shown in Table 1. These subtests are included in the battery because research and experience have demonstrated that they are valid predictors of success in various types of military job training.

Table 1

The Ten Armed Services Vocational Aptitude Battery (ASVAB) Subtests

ASVAB Subtests (Forms 8, 9, and 10)	
• Arithmetic Reasoning	• General Science
• Numerical Operations	• Mathematics Knowledge
• Paragraph Comprehension	• Electronics Information
• Word Knowledge	• Mechanical Comprehension
• Coding Speed	• Automotive-Shop Information

¹ A series of reports describing the design, data collection, and data analysis of *The Profile of American Youth* has been published separately. These reports are cited in the text and may be obtained from the Directorate for Accession Policy, Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), Washington, D.C. 20301.

The scores of four of the subtests (word knowledge, paragraph comprehension, arithmetic reasoning, and numerical operations) are combined to produce an Armed Forces Qualification Test (AFQT) score. The AFQT score, supplemented by scores on various composites of aptitude subtests, is used in conjunction with educational, medical, and moral standards to determine an applicant's enlistment eligibility. Scores on the aptitude composites also determine the applicant's eligibility to enter specific military fields. The Services combine subtests in various ways to form aptitude composites. The subtests that comprise two selected composites are shown in Table 2.

Table 2

**Selected Aptitude Composites and
Their Component ASVAB Subtests**

Selected Composites	ASVAB Subtests
Administrative	Paragraph Comprehension Word Knowledge Numerical Operations Coding Speed
Electronics	Electronics Information General Science Arithmetic Reasoning Mathematics Knowledge

The Armed Forces Qualification Test

During the early years of World War II (1940-1942), men were accepted for military service if they had completed the fourth grade or were able to pass literacy screening tests; in later years (1943-1945), minimal literacy was no longer required for induction.^{1, 2, 3, 4} After entry into a Service, the primary test instrument for job assignment purposes was the Army General Classification Test (AGCT). A test of general trainability, the AGCT was composed of questions that measured verbal, arithmetic, and spatial abilities.

¹ Ginzberg, E., Anderson, J.K., Ginsburg, S.W., & Herma, J.L. *The lost divisions*. New York: Columbia University Press, 1959.

² Department of the Army. *Marginal man and military service: A review*. Washington, D.C.: Department of the Army, 1965.

³ U.S. Selective Service. *As the tide of war turns: The third report of the director of the Selective Service, 1943-1944*. Washington, D.C.: Government Printing Office, 1945.

⁴ Blum, A.A. *Drafted or deferred*. Ann Arbor, MI: Bureau of Industrial Relations, University of Michigan, 1967.

After World War II, this test was used by the Army for enlistment screening. The AFQT, modeled after the AGCT, was introduced in 1950 to determine the eligibility of draftees and volunteers to enter any of the Services.^{1, 2, 3}

The AFQT has been revised periodically to lessen the likelihood of test compromise and to update test language and content. Until 1973, each new AFQT was calibrated⁴ to the AGCT so that successive AFQT scores would have a constant meaning in terms of level of trainability. In 1972, the Services discontinued use of a common AFQT; from 1973 through 1975, each Service estimated an AFQT score from its own test battery. The ASVAB became operational as the single DoD enlistment test in 1976, and since then AFQT scores have been based on a test common to all Services.

The AFQT composite from the ASVAB used in this study (Form 8A) was calibrated against an earlier version of the AFQT (Form 7A) used operationally from 1960 through 1972. This calibration established the linkage to the World War II reference population, thereby enabling percentile scores from the new AFQT to have the same interpretive meaning as scores from predecessor tests.

AFQT Categories

For reporting purposes, scores on the AFQT have traditionally been grouped into five broad categories. Persons who score in Categories I and II tend to be above average in trainability; those in Category III, average; those in Category IV, below average; and those in Category V, markedly below average and, under current Service policy, not eligible to enlist. The Services prefer enlistees in the higher AFQT categories because training time and associated costs are lower. Also, these recruits are more likely to qualify for specialized training in a greater number of occupational areas.

The range of percentile scores for the AFQT categories and the percentage of the World War II reference population in each category are shown in Table 3. AFQT percentile scores are based on the World War II population of officers and enlisted men who were on active duty as of 31 December 1944 — approximately 12 million males.

An error in calibration of the ASVAB in use from January 1976 through September 1980⁵ resulted in inaccurate category designations for some recruits taking the test. The AFQT that went into use in January 1976 had been miscalibrated to earlier forms of the test, and this error inflated the AFQT scores of low-scoring enlistees. The problem

¹ Uhlaner, J.E., & Bolanovich, D.J. *Development of the Armed Forces Qualification Test and predecessor Army screening tests, 1946-1950* (PRS Report 976). Washington, D.C.: Personnel Research Section, Department of the Army, 7 November 1952.

² Staff, Personnel Research Section. "The Army General Classification Test." *Psychological Bulletin*, 1945, 42(10), 760-768.

³ Staff, Personnel Research Section. "The Army General Classification Test, with special reference to the construction and standardization of forms 1a and 1b." *Journal of Educational Psychology*, 1947, 385-420.

⁴ Calibration is a method through which test raw scores are converted to percentile scores. Raw scores on a test are of limited usefulness by themselves. When they are calibrated against the scores of a defined and relevant population, percentile scores from different versions of a test have the same interpretive meaning. For example, a percentile score of 65 from the current AFQT version should equate to a percentile score of 65 from the AFQT used during the 1960s.

⁵ Department of Defense. *Aptitude testing of recruits*. A Report to the House Committee on Armed Services. Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), July 1980.

Table 3

**Armed Forces Qualification Test (AFQT) Categories by
Corresponding Percentile Score Range and
Distribution of World War II Reference Population**

AFQT Category	Percentile Score Range	World War II Reference Population Distribution (Percent)
I	93 - 100	8
II	65 - 92	28
III	31 - 64	34
IV	10 - 30	21
V	1 - 9	9
		<u>100</u>

was corrected with introduction of the new, accurately calibrated test in October 1980.¹ In addition, the inflated scores for the FY 1976-1980 period were recomputed, and the corrected norms were made available. This recomputation resulted in a significant decrease in the percentages of Category III recruits and an increase in Category IV enlistees recorded as having entered the Services during the late 1970s.

Validity of the AFQT and ASVAB Aptitude Composites

Although there have been some changes in the composition of the AFQT since its introduction in 1950, it continues to serve its original purpose as a measure of general trainability. As a reliable index of basic verbal and numeric skills, it is used to screen out applicants for military service who function at the lowest ability levels. The experience of the last 35 years suggests that individuals who score low on the AFQT are less likely to be successful in military training than are their higher scoring peers. Additionally, they are more likely to have disciplinary problems. Though there are many high-scoring personnel who prove ineffective and many low-scoring persons who perform well, on the average, the higher an individual's AFQT score, the greater the likelihood of successful military performance.

Scores on the ASVAB aptitude composites (e.g., electronics, combat, administrative) have also shown their usefulness. Many training courses are highly technical and require a degree of mechanical experience, and others an ability to deal with clerical and administrative tasks. Again, yet not perfectly predictive, the higher the scores attained on ASVAB aptitude composites, the greater the probability that an individual will perform well in training and develop the specific skills needed to be effective on the job.²

¹ Department of Defense. *Implementation of new Armed Services Vocational Aptitude Battery and actions to improve the enlistment standards process*. A Report to the House and Senate Committees on Armed Services. Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), December 31, 1980.

² A selected list of references on the topic of the utility of the AFQT and the ASVAB is presented in the report bibliography.

OVERVIEW OF THE REPORT

This report describes analyses of the data from the 1980 Profile of American Youth. The profile study research design, sampling procedures, and data analyses are described in Section 2.

Section 3 presents a comparison of characteristics of the 1980 youth population and military personnel—both FY 1981 accessions (Total DoD and by Service) and the World War II reference population. Comparisons of AFQT scores and educational levels are shown by sex and by racial/ethnic group. This section also includes historical information on trends in AFQT and educational levels of military accessions over the past 20 years.¹

In Section 4, average scores of the 1980 youth population subgroups are compared on the AFQT, Service aptitude composites, and estimated reading grade levels. Results are reported by age, sex, race/ethnicity, level of education, socioeconomic status, and geographical region. Section 5 summarizes the results documented in this report.

Statistical tables underlying all figures are included in the appendices. An extensive bibliography of references related to aspects of this report is included.

¹ Throughout this report, the term "military accessions" refers to new recruits without prior military service.

Section 2

STUDY METHODOLOGY

BACKGROUND OF THE STUDY

The 1980 Profile of American Youth is closely related to the five-year National Longitudinal Survey (NLS) of Youth Labor Force Behavior.¹ The purpose of the NLS is to study the behavior within the labor market of a large and representative cross section of American youth. Information about youth born from 1957 through 1964 is being collected through annual personal interviews. The NLS is primarily concerned with problems relating to employment and unemployment, but the interviews also gather a great deal of supplemental information about the characteristics, experience, plans, and attitudes of the young people. NLS respondents will be reinterviewed annually for five years to track changes in attitudes and vocational behavior of American youth across time.

The most important relationship between the profile study and the NLS is that the profile study uses for its sample young people who completed the first annual interview of the NLS in 1979. Use of the NLS sample provides the profile study with an already existing, nationally representative sample of young people in the age group of interest. Second, the data collection of both studies was carried out by the National Opinion Research Center (NORC). Third, data can and will be shared between the two studies. Demographic data collected by the NLS were added to the ASVAB test information obtained in the profile study.²

STUDY RESEARCH DESIGN

The Sample

The NLS sample was designed to represent the national population of youth, ages 14 to 22, as of 1 January 1979.^{3,4} Civilian members of the youth population were

¹ The NLS is funded by the Department of Labor under authority of the Comprehensive Employment and Training Act. The prime contractor for the NLS is the Center for Human Resource Research of the Ohio State University. The National Opinion Research Center, University of Chicago, is the subcontractor for data collection. Funding for the 1980 Profile of American Youth was provided by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) and the Military Services.

² Sheatsley, P.B. *The profile of American youth: Pretest report*. Chicago: National Opinion Research Center, September 1980.

³ Frankel, M.R., & McWilliams, H.A. *The profile of American youth: Technical sampling report*. Chicago: National Opinion Research Center, March 1981.

⁴ McWilliams, H.A., & Frankel, M.R. *The profile of American youth: Non-technical sampling report*. Chicago: National Opinion Research Center, October 1981. The sample accurately represents the United States civilian and military population of youth, ages 14 to 22 as of 1 January 1979. Aside from trivially small differences introduced by deaths and by migrations into and out of the country by persons in this age group, the sample accurately represents the summer 1980 population of United States youth, ages 16 to 23.

obtained by screening approximately 80,000 households, carefully selected to provide a representative nationwide sample, during the fall of 1978. This screening identified approximately 14,000 eligible youth of the appropriate age. The sample included members of the youth population serving in the military who were eligible for selection if they (a) were serving in the Armed Services as of 30 September 1978 and (b) would be between the ages of 17 and 21 as of 1 January 1979.

In the spring of 1979, NORC interviewed 12,686 civilian and military youth for the first annual (baseyear) NLS survey. The baseyear sample contains youth from both urban and rural areas and from all major Census regions, and approximately equal proportions of males and females. The sample overrepresents, in a statistically appropriate way, certain key groups, such as Hispanics, blacks, economically disadvantaged whites, and women in the military. This oversampling allows for more precise analyses of these groups than would otherwise be possible.¹

The 1980 youth profile study used for its target sample the 12,686 young people who completed the first annual (1979) interview of the NLS. During July-October 1980, a total of 11,914 ASVABs were administered, representing a completion rate of approximately 94 percent. Thirty-six cases were dropped from this final sample because test procedures had been altered for these individuals due to language problems (e.g., non-English speaking respondents) or physical and mental handicaps (e.g., blindness, cerebral palsy, and mental retardation). The composition of the completed profile sample is shown in Table 4 by sex and racial/ethnic group.²

Table 4
Composition of the Profile of American Youth Sample:
Racial/Ethnic Group and Sex

Racial/Ethnic Group	Sex		Total
	Male	Female	
White ^a	3,531	3,496	7,027
Black ^b	1,511	1,511	3,022
Hispanic	902	927	1,829
Total	5,944	5,934	11,878

^aWhite includes all racial/ethnic groups other than black or Hispanic.

^bBlack does not include persons of Hispanic origin.

¹ As a result of the disproportionate oversampling among key groups, all analyses of the NLS/Profile of American Youth data must be done using weighted data.

² For the purposes of this report, three categories of racial/ethnic groups are used: white, black, and Hispanic. The designation "white" actually means "white and others" and is composed of all non-black and non-Hispanic examinees. A small proportion of Native Americans and persons of Asian ancestry are thus included in the white groups. A more detailed description of racial/ethnic group composition can be found in Section 4 of this report.

Since the Services primarily recruit individuals who are 18 years of age and older, analyses presented in this report focus upon young people born between 1 January 1957 and 31 December 1962. Unless otherwise stated, the age range for the profile study sample analyzed here is 18 through 23 years at the time of testing. The final sample of 9,173 people of enlistment age is shown in Table 5, by sex and racial/ethnic group. Supplementary analyses of the remaining cases were performed and showed findings similar to those for the older youth. These results are not reported since the individuals were not of enlistment-eligible age at the time of testing.

Table 5
Composition of the Profile of American Youth Sample:
Year of Birth, Racial/Ethnic Group, and Sex^a

Year of Birth	Age at Time of Testing (Years)	Racial/Ethnic Group								Total
		White ^b		Black ^c		Hispanic		Total		
		Male	Female	Male	Female	Male	Female	Male	Female	
1962	18	458	401	213	210	108	145	779	756	1,535
1961	19	363	418	207	211	129	116	689	745	1,444
1960	20	445	448	197	206	123	110	765	764	1,529
1959	21	480	519	169	195	108	109	767	823	1,590
1958	22	477	505	190	167	92	102	759	774	1,533
1957	23	521	480	167	166	93	107	781	761	1,542
TOTAL		2,754	2,779	1,143	1,155	653	689	4,550	4,623	9,173

^aRestricted to persons in the sample born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^bWhite includes all racial/ethnic groups other than black or Hispanic.

^cBlack does not include persons of Hispanic origin.

The corresponding size of the 1980 national youth population (weighted sample) is shown in Table 6 by year of birth, racial/ethnic group, and sex.

Table 6
Composition of National Youth Population Based on Profile of American Youth Sample:
Year of Birth, Racial/Ethnic Group, and Sex^a
(In Thousands)^b

Year of Birth	Age at Time of Testing (Years)	Racial/Ethnic Group								Total
		White ^c		Black ^d		Hispanic		Total		
		Male	Female	Male	Female	Male	Female	Male	Female	
1962	18	1,677.0	1,616.1	295.4	292.1	139.5	123.5	2,112.8	2,031.7	4,144.5
1961	19	1,701.6	1,843.9	296.6	293.1	140.0	124.3	2,138.2	2,061.3	4,199.5
1960	20	1,729.8	1,669.8	295.9	290.2	134.8	127.8	2,160.1	2,087.8	4,248.0
1959	21	1,753.2	1,670.3	285.2	289.3	120.1	131.8	2,158.8	2,096.4	4,255.1
1958	22	1,755.5	1,708.7	284.1	289.5	122.0	131.7	2,161.6	2,129.9	4,291.4
1957	23	1,762.8	1,700.4	275.7	282.9	121.2	127.5	2,159.7	2,110.8	4,270.4
TOTAL		10,380.6	10,014.2	1,733.0	1,737.1	777.6	766.6	12,891.2	12,517.9	25,409.1

^aRestricted to persons in the sample born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^bFigures are rounded.

^cWhite includes all racial/ethnic groups other than black or Hispanic.

^dBlack does not include persons of Hispanic origin.

Quality of the Sample

To provide DoD with an assessment of the sample design, development of sample case weights, and sampling statistics, an independent panel of sampling experts (Dr. B.F. King, University of Washington; Dr. L. Kish, University of Michigan; Dr. G.E. Hall, U.S. Bureau of Census; and Dr. J. Sedransk, State University of New York) was convened.

The panel concluded: (a) the sample design was appropriate for meeting the objectives of the profile study, and (b) all of the statistical procedures used in the development of sample case weights and sampling statistics met the professional criteria established for efforts of this nature, both in the public and the private sectors.¹

TEST ADMINISTRATION

During the period July through October 1980, NORC representatives administered the ASVAB to the 11,914 young people who comprised the profile sample. Testing was generally conducted in groups of five to ten persons. More than 400 test sites, including hotels, community centers, and libraries throughout the United States and abroad, were used. The test was administered according to strict guidelines conforming to standard ASVAB procedures.² Great care was also taken to assure confidentiality.

In May 1981, NORC sent all respondents copies of their test results, information to interpret the scores, and a brochure concerning vocational and educational information. Participants were paid honoraria for completing the test. The decision to pay an honorarium was based on experience in similar studies, which indicated that an incentive would be needed to get young people to travel up to an hour to a testing center, spend three hours or more taking a test, and then travel home. The honorarium was set at \$50. It has been anticipated that the monetary incentive offered for participation in the aptitude profile study would counteract attrition of the NLS sample. The high rate of participation that was attained added to the value of the data.

The decision to provide an incentive honorarium was also influenced by the importance of the NLS itself, and an obligation to ensure that the added demands of the profile study on the NLS respondents would do nothing to discourage their further participation in the NLS study.

QUALITY CONTROL FOR THE STUDY

Quality of Data Files

A DoD team of testing experts and computer programmers verified that NORC had accurately transcribed ASVAB scores and demographic information from the original source documents (i.e., answer sheets and questionnaires) to the computer tape provided to DoD. A random sample (one percent of the cases) was selected for the data audit. For the sample cases, ASVAB answer sheets were hand-scored and demographic questionnaires were manually reviewed. In every case, the information from the source documents had been correctly recorded on the tape.³

¹ Frankel, M.R., & McWilliams, H.A. *The profile of American youth: Technical sampling report*. Chicago: National Opinion Research Center, March 1981.

² McWilliams, H.A. *The profile of American youth: Field report*. Chicago: National Opinion Research Center, December 1980.

³ Sellman, W.S., & Hagan, H.T. *The profile of American youth: Data audit* (Technical Memorandum 81-1). Washington, D.C.: Directorate for Accession Policy, Office of the Secretary of Defense, April 1981.

Quality of ASVAB

To evaluate the suitability of the ASVAB for measuring the aptitudes of a national sample of young people, DoD contracted with Dr. R.D. Bock, an authority on educational and psychological testing at the University of Chicago. Dr. Bock evaluated the test to determine its appropriateness for measuring vocational aptitudes and its equity for minorities and females. He reported:

Data from responses of the Profile of American Youth sample to the ASVAB are free from major defects such as high levels of guessing or carelessness, inappropriate levels of difficulty, cultural test-question bias, and inconsistencies in test administration procedures. They provide a sound basis for the estimation of population attributes such as means, medians and percentile points, for the youth population as a whole and for sub-populations defined by age, sex, and race/ethnicity.¹

Based on Bock's analysis it can be concluded that the ASVAB is useful for measuring vocational aptitudes of civilian youth. Moreover, Dr. Bock has stated that the quality of the ASVAB equals or surpasses that of commercial aptitude and achievement tests.

¹ Bock, R.D., & Mislevy, R.J. *Data quality analysis of the Armed Services Vocational Aptitude Battery*. Chicago: National Opinion Research Center, August 1981.

Section 3

COMPARISON OF THE 1980 YOUTH POPULATION WITH MILITARY ACCESSIONS

This section focuses primarily on the similarities and differences between current enlistees and the population of contemporary youth. It also presents a comparison of aptitude test scores between the World War II reference population and the Profile of American Youth population.

To place recent data in historical perspective, a brief review of recruiting experiences over the past two decades is provided. Traditionally, DoD has used three criteria for gauging its "success" in manning the force. The first and most fundamental measure is the achievement of manpower strength objectives. Since the end of conscription the active forces have consistently been within one-and-one-half percent of the manpower levels authorized by Congress. The second and third "criteria of success" are measures of the "quality" of new recruits: enlistment test scores and level of education.

1980 YOUTH POPULATION COMPARED WITH THE WORLD WAR II REFERENCE POPULATION¹

The AFQT category distributions of the 1980 male youth population and the World War II reference population are compared in Table 7.² Forty percent of the 1980

Table 7

Armed Forces Qualification Test (AFQT) Distributions of 1980 Male Youth
Population and World War II Reference Population^a
(Percent)

Population Group	AFQT Category					Total	Median
	I	II	III	IV	V		
1980 Male Youth ^b	5	35	29	23	8	100	53
World War II Reference	8	28	34	21	9	100	50

^a1980 Male Youth Population is restricted to persons born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^bFemales are excluded from this table because the World War II reference population was exclusively male.

¹The "World War II reference population" approximates the actual composition of males on active duty (officers and enlisted personnel) as of 31 December 1944.

²Females were not included in this particular comparison because the World War II reference population was composed exclusively of males.

youth population are in the two highest AFQT categories (I and II combined), compared with 36 percent of the World War II military population. In the two lowest categories (IV and V combined), the proportions of 1980 male youth and the World War II population are almost identical. The proportion in Category III was higher in the reference population.

The median AFQT percentile score for 1980 male youth is 53, compared with a median percentile score of 50 for the reference population. Fifty-four percent of the males in the profile study population achieved an AFQT score of 50 or above.

The similarity between the World War II reference population and the 1980 youth population does not necessarily suggest that ability, as measured by the AFQT, has remained relatively constant over the past 35 years. The data presented in Table 7 reflect differences in population demographics, test scaling variations, differences in test construction and administration, and related factors, and thus do not permit analyses of test score trends over time. Even if one makes the assumption that the two test score distributions could be reliably compared, aptitudes and test scores may have fluctuated during the intervening years in many other ways. In the absence of additional data, further interpretations would be speculative.

HISTORICAL TRENDS IN ACCESSIONS

Armed Forces Qualification Test (AFQT) Scores

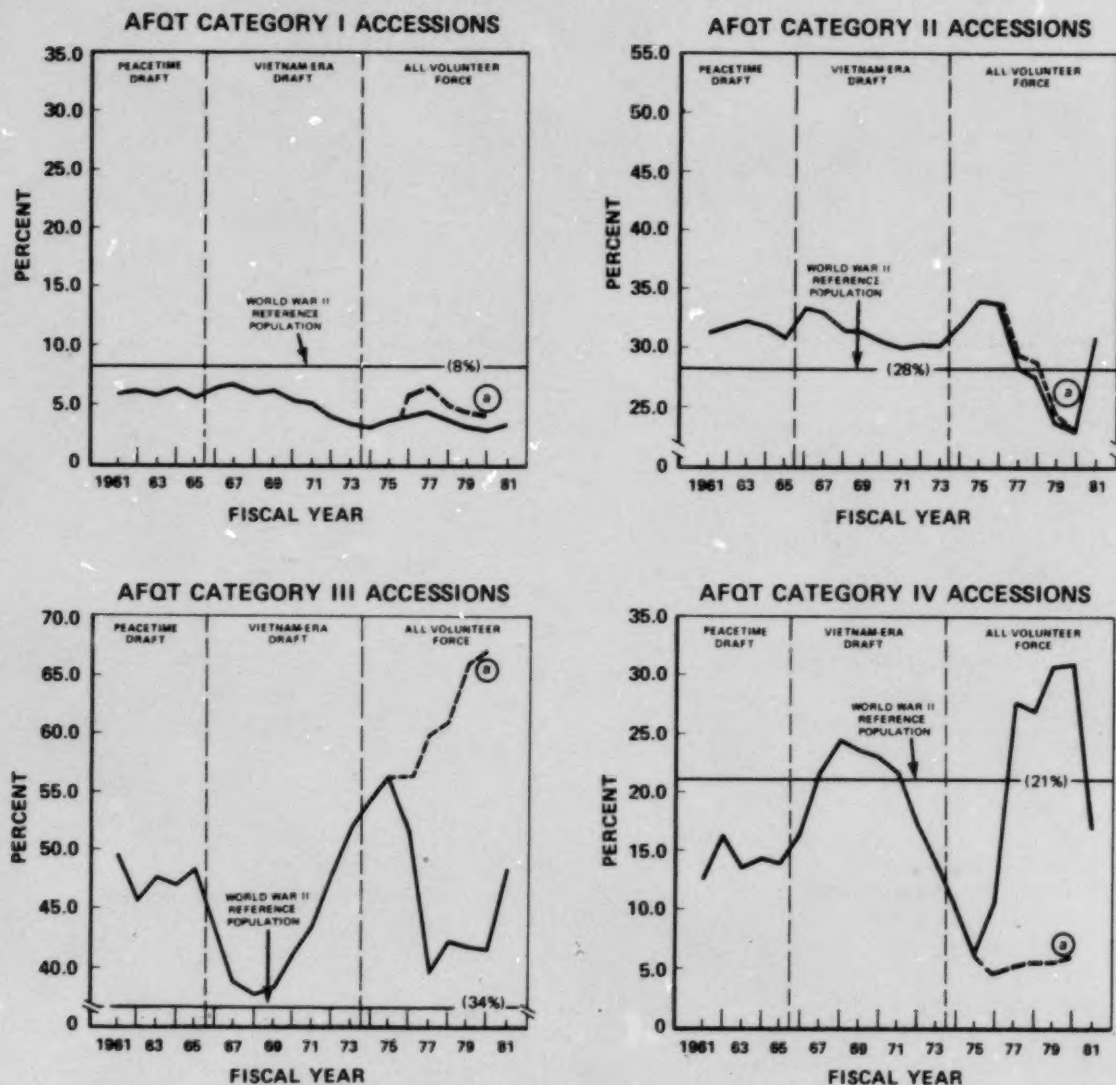
Historical comparisons of AFQT scores of military recruits are useful to Defense manpower analysts and policymakers. Assessment of trends in the aptitudes of recruits allows DoD to examine the effects of policy changes and market factors on Service recruiting.

The variations in the AFQT category distributions of military accessions over the past two decades are shown in Figure 1 for total DoD. Army data are presented separately in Figure 2 since the Army has the largest manning requirements of all the Services and has typically been the center of attention in military manpower studies. It is clear from these figures that AFQT scores of military accessions have shifted widely over the past 21 years.

The proportion of accessions in Category I remained fairly constant from FY 1961 through FY 1969, both for total DoD and for the Army. However, since 1970, there has been a downward trend in the proportion of Category I accessions—a trend that is similar to the decline in scores on the Scholastic Aptitude Test (SAT) and other standardized aptitude and achievement tests during the same period.¹

From FY 1961 through FY 1976, the percentages of Category II DoD recruits were greater than the 28 percent level in the World War II reference population. However, in the Army the Category II accessions during this period remained consistently close to the World War II level. From FY 1976 through FY 1980, the proportion of Category II accessions decreased, both for total DoD and for the Army, followed by a significant increase in FY 1981. Two major factors that may have contributed to this decline were an improved national economy following the recession of 1974-75, with attendant improvements in civilian job prospects, and a relative reduction in military pay (i.e., in relation to changes in the cost-of-living).

¹Waters, B.K. *The test score decline: A review and annotated bibliography* (Technical Memorandum 81-2). Washington, D.C.: Directorate for Accession Policy, Office of the Secretary of Defense, August 1981.

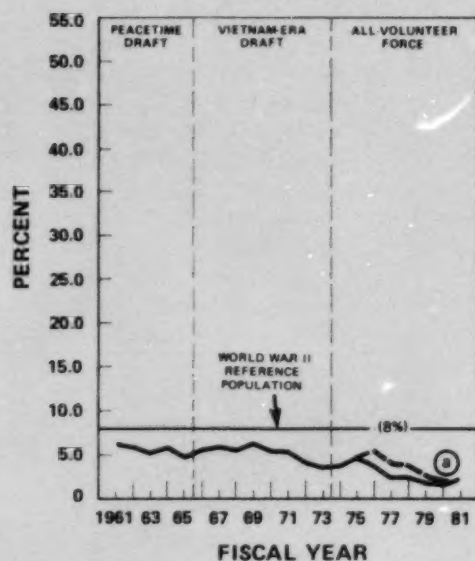


Source: Data on 1961-70 accessions are from Office of Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics). Data on 1971-81 accessions provided by Defense Manpower Data Center. Detailed statistics appear in Table B-1, Appendix B.

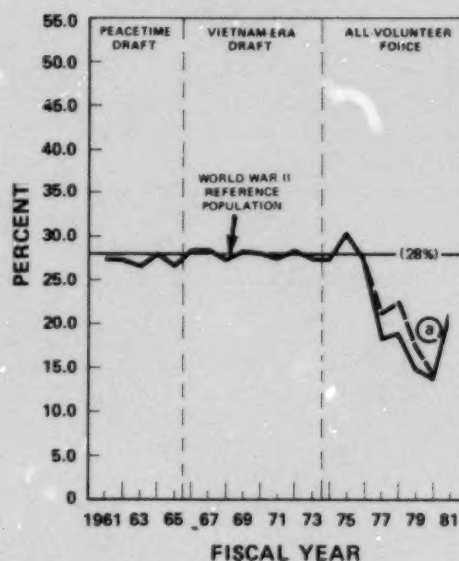
(a) Broken lines show the percentage of accessions scoring within the respective AFQT category, as originally reported prior to the discovery of test miscalibration. Solid lines for this period (FY 1976-80) reflect the percentage of accessions based on test scores that were later renormed.

Figure 1. Total DoD: Percentage Distribution of Nonprior Service Accessions by Armed Forces Qualification Test (AFQT) Category, Fiscal Years 1961-81.

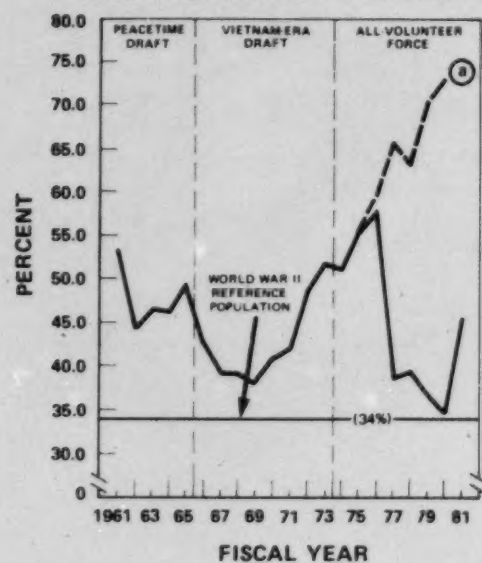
AFQT CATEGORY I ACCESSIONS



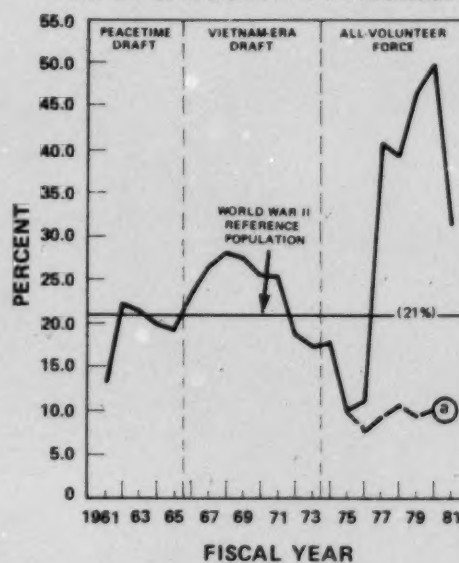
AFQT CATEGORY II ACCESSIONS



AFQT CATEGORY III ACCESSIONS



AFQT CATEGORY IV ACCESSIONS



Source: Data on 1961-70 accessions are from Office of Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics). Data on 1971-81 accessions provided by Defense Manpower Data Center. Detailed statistics appear in Table B-1, Appendix B.

- a Broken lines show the percentage of accessions scoring within the respective AFQT category, as originally reported prior to the discovery of test miscalibration. Solid lines for this period (FY 1976-80) reflect the percentage of accessions based on test scores that were later renormed.

Figure 2. Army: Percentage Distribution of Nonprior Service Accessions by Armed Forces Qualification Test (AFQT) Category, Fiscal Years 1961-81.

The distributions of Category III and IV accessions, both total DoD and Army, tended to be inversely related. As shown in Figures 1 and 2, when the proportion of Category III accessions decreased, the proportion of Category IV accessions increased, and vice versa. The three major shifts in the proportion of Category IV accessions—the sharp rise during the late 1960s, the rapid decrease in the mid 1970s, and the rise in the late 1970s—seem to be related to specific events or changes in recruiting policy. During 1966-71, "Project 100,000" resulted in the entrance of 322,000 lower-ability individuals, thus increasing the proportion of Category IV accessions.^{1,2} The sharp decrease in the proportion of Category IV accessions during the early 1970s was a function of several factors—the end of the Vietnam conflict and consequent drop in accession requirements, and the heightened recruiting efforts and increases in military compensation in connection with the introduction of the All-Volunteer Force, which tended to attract more highly qualified recruits. The higher percentages of Category IV accessions during FYs 1976-80 resulted primarily from the ASVAB miscalibration, which originally placed many recruits in Category III when they should have been in Category IV.³

It should be noted that the AFQT distributions for military recruits include only enlisted personnel. The AFQT is not typically administered to persons who enter military service as officer candidates or officers. If these individuals did take the test, they probably would score in Categories I and II. It is estimated that if officers were included, the percentages in Categories I and II combined would probably increase between 3 and 4 percent. The percentages in Categories III-IV would be correspondingly decreased.

Another way of evaluating recruit aptitude trends over time is to compare the relative percentages of new recruits who score at the 50th percentile and above. The proportions of accessions (males and females) with AFQT scores of 50 or higher since the early 1960s are shown in Figure 3 (total DoD and Army nonprior service). Total DoD recruit quality, as estimated by this measure, remained relatively constant during the peacetime draft years. Both DoD and Army recruit scores showed a slight downward trend during the years of the Vietnam-era draft. The average scores increased during the early years of the All-Volunteer Force (FY 1973-75) and then dropped sharply as a result of ASVAB miscalibration (FY 1976-80). The AFQT scores of recruits rose during FY 1981; in fact, for DoD as a whole, individuals who entered service in FY 1981 had the highest average score for new recruits since FY 1976.

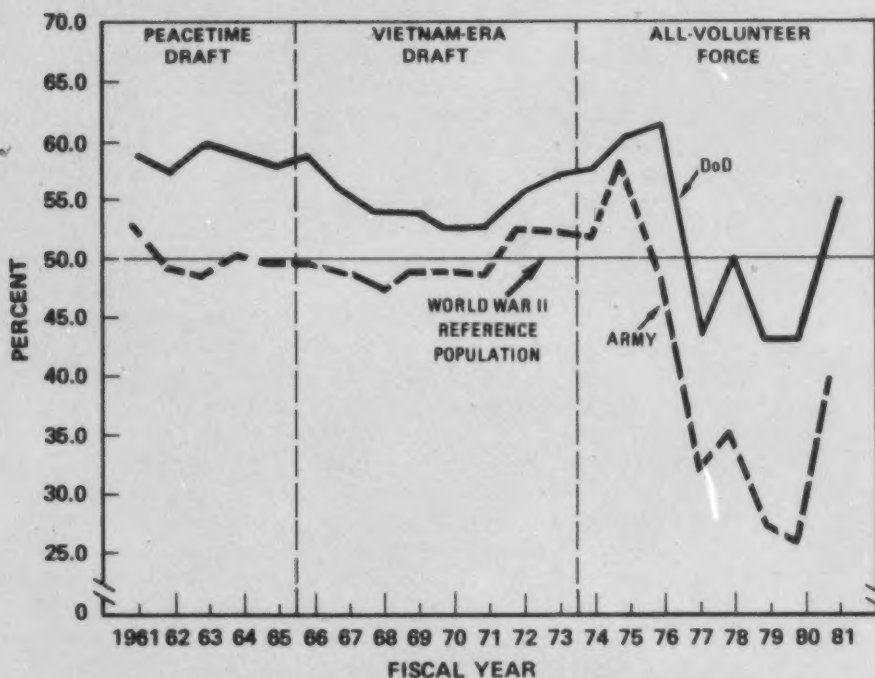
Educational Level

Possession of a high school diploma is an important indicator of the capacity of individuals to adjust successfully to military life. A person who did not graduate from high school is twice as likely to leave the military before completing the first three years of service as is a high school diploma graduate. Consequently, recruiting programs

¹ Department of Defense. *Project 100,000: Characteristics and performance of "new standards" men*. Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs), December 1969.

² Ratliff, F.R., & Earles, J.A. *Research on the management, training, and utilization of low aptitude personnel* (AFHRL-TR-76-69). Brooks AFB, TX: Air Force Human Resources Laboratory, December 1976.

³ If the ASVAB had been correctly calibrated, the efforts of recruiters might have resulted in the enlistment of more highly-qualified individuals, and the average scores might not have declined so dramatically when renormed.



Source: Data for 1961-70 are from U.S. Army Recruiting Command (USAREC), *Annual Report of the Qualitative Distribution of Military Manpower*, RCS-DD-M(A)664 (Hampton, VA: USAREC, 1961 through 1972). Data for 1973-81 provided by Defense Manpower Data Center. Detailed statistics appear in Table B-3, Appendix B.

Figure 3. Percent of Nonprior Service Accessions (Army and Total DoD) Scoring At or Above AFQT 50, Fiscal Years 1961-81.

have traditionally emphasized efforts to enlist high school diploma graduates. The percentages, by Service, of nonprior service accessions over the last decade who had high school diplomas when they entered are shown in Table 8.

Table 8

Percent of Nonprior Service Accessions Who Are High School Diploma Graduates by Service, Fiscal Years 1972-81

Service	Fiscal Year									
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Army	61	62	50	58	59	59	74	64	54	80
Navy	71	65	64	71	77	73	77	77	75	76
Marine Corps	52	51	50	53	62	70	75	75	78	80
Air Force	83	85	92	91	89	88	85	83	83	88
DoD Total	67	66	61	66	69	69	77	73	68	81

SOURCE: Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics).

In FY 1981, the proportion of high school diploma graduates increased in all Services, and particularly in the Army. The DoD total of 81 percent represents an all-time high in the educational level of recruits. These results reflect vigorous recruiting efforts, additional recruiting resources provided by the Congress, increased military pay and compensation, and higher youth unemployment.

1980 YOUTH POPULATION COMPARED WITH FY 1981 ACCESSIONS

Since the Services primarily recruit individuals who are ages 18 and older, the youth population analyses were focused upon persons between the ages of 18 and 23.¹ Military accession data were similarly limited to test scores of individuals in this age range so that direct comparisons could be made. Thus, statistics cited in this section will differ slightly from official DoD statistics that include all ages.

AFQT SCORES

The AFQT category distributions of FY 1981 military accessions and the 1980 youth population are compared in Table 9. In FY 1981, DoD enlisted a slightly smaller proportion of individuals with above-average scores (Categories I and II combined) than were found in the 1980 youth population. However, the proportion of accessions scoring in the average range (Category III) was considerably higher than the comparable proportion of the 1980 youth population, and the proportion of recruits in the below-average range (Categories IV and V combined) was lower than the comparable proportion of the youth population.

In FY 1981, 80 percent of all nonprior service accessions received scores within AFQT Categories I-III, a substantially higher proportion than the 69 percent in the 1980 youth population. For the Army, the proportion of Army recruits who scored in Categories I-III was similar to the proportion among contemporary youth.

Overall, individuals who entered military service in FY 1981 scored higher on the AFQT than did individuals in the youth population. This difference is partly the result of Service restrictions on the enlistment of individuals at the lower end of the aptitude range. Service policy, for example, currently prohibits enlisting applicants who score in Category V; in addition, many Category IV applicants do not meet Service enlistment standards.

Representativeness

In discussions about the All-Volunteer Force, much emphasis is placed on the cross-sectional character of the enlisted ranks and the need to have a military institution that mirrors the society which it serves.² During recent years, such discussions have centered largely on issues regarding the "quality" of enlisted personnel. The Profile of American Youth offers, for the first time, an accurate index for evaluating the cross-sectional character of military accessions in terms of comparative aptitude test scores and educational level. Analyses were therefore performed, by Service, to determine how new

¹ Individuals who were 23 years old at the time of testing represented the oldest group studied in the Profile of American Youth.

² Eitelberg, M.J. "American youth and military representation: In search of the perfect portrait." *Youth and Society*, 1978, 10, 5-31.

Table 9

**Distribution of 1980 Youth Population and FY 1981 Nonprior Service Accessions by
Armed Forces Qualification Test (AFQT) Category and Sex^a**

Sex and Population Group	AFQT Category ^b					Total	Median	Percent Scoring AFQT 50 or Above
	I	II	III	IV	V			
(Percent)								
Male								
<u>FY 1981 Accessions</u>								
Army	2	21	43	34	0	100	41	39
Navy	3	35	48	14	0	100	56	60
Marine Corps	3	29	53	15	0	100	52	54
Air Force	3	39	50	8	0	100	59	67
Total DoD	3	30	47	20	0	100	52	54
<u>1980 Youth</u>	5	35	29	23	8	100	53	54
Female^c								
<u>FY 1981 Accessions</u>								
Army	2	19	47	32	0	100	42	37
Navy	3	34	54	9	0	100	57	62
Marine Corps	3	47	50	d	0	100	64	92
Air Force	3	39	54	4	0	100	59	70
Total DoD	3	29	51	17	0	100	53	55
<u>1980 Youth</u>	4	31	34	25	6	100	50	51
Total								
<u>FY 1981 Accessions</u>								
Army	2	21	43	34	0	100	41	39
Navy	3	35	48	14	0	100	56	61
Marine Corps	3	30	53	14	0	100	54	57
Air Force	3	39	50	8	0	100	59	67
Total DoD	3	30	47	20	0	100	52	54
<u>1980 Youth</u>	4	33	32	24	7	100	51	53

^a1980 youth population and FY 1981 nonprior service accessions restricted to persons born between January 1, 1957 and December 31, 1962 (18 through 23 years).

^bPersons scoring in AFQT Category V are not eligible for military enlistment.

^cFemales comprise approximately one-half of the 1980 youth population and less than one-fifth of FY 1981 accessions.

^dLess than 0.5 percent.

recruits compared, by sex and racial/ethnic groups, with the population of youth from which they were drawn.

Sex Results. The AFQT scores of FY 1981 nonprior service accessions and the 1980 youth population are also compared by sex in Table 9. In general, the proportion of males who scored in the above-average range (Categories I and II combined) was greater in the 1980 youth population than among accessions in each of the Services. The only exception was the Air Force, where slightly more male accessions scored in this range. Female accessions in each Service except the Army scored more often in AFQT Categories I and II than did females in the youth population. However, because the Army has the largest number of females, the percentage for total DoD female accessions in Categories I and II is also below the national population of females.

All Services have substantially more accessions of both sexes in the average range (Category III) than are found in the youth population as a whole. In the below-average range (AFQT Categories IV and V combined) only the Army has a larger proportion than is in the population.

Racial/Ethnic Results. The AFQT category distributions, by racial/ethnic group, of the 1980 youth population and FY 1981 accessions are presented in Table 10. The percentages of white accessions scoring in the above-average range (Categories I and II combined), in the Air Force, Navy, and the Marine Corps are fairly close to the percentage of white youth. The Army, however, is substantially below the national percentage.

For blacks, all Services except the Army have a larger percentage of accessions in Categories I and II than in the civilian population; the Army has a slightly smaller percentage. For Hispanics, the Navy and Air Force percentages in Categories I and II exceed the national percentage, the Marine Corps is equal, and the Army has one-half the national percentage. All Services have a larger percentage of minorities in the average range (Category III) than does the minority youth population. In the below-average range (Category IV), as in the other racial/ethnic comparisons, the Army has a larger percentage than the national norm; the other Services have a smaller percentage. The figures for total DoD accessions tend to be close to the national percentages for each racial/ethnic group with the exception that Category V applicants are excluded from enlistment.

High School Graduation Status

High school graduation status is used in combination with AFQT scores to measure the quality and predict the probability of training success of military applicants. The educational level (based upon high school graduation) of the 1980 youth population and military accessions (18 to 23 years old) was compared by sex and racial/ethnic group.

As shown in Table 11, all Military Services recruited a much higher percentage of high school diploma graduates and a lower proportion of non-high school graduates than are found in the national youth population. This pattern holds true for both males and females. The relative educational level of female accessions surpassed that of male accessions and was considerably higher than the educational level (as determined by high school graduation status) of females in the general population.

Table 10

**Distribution of 1980 Youth Population and FY 1981 Nonprior Service Accessions by
Armed Forces Qualification Test (AFQT) Category and Racial/Ethnic Group^a**

Racial/Ethnic Group and Population Group	AFQT Category ^b					Total	Median	Percent Scoring AFQT 50 or Above
	I	II	III	IV	V			
	(Percent)							
White^c								
<u>FY 1981 Accessions</u>								
Army	3	27	46	24	0	100	50	48
Navy	4	38	48	10	0	100	59	66
Marine Corps	3	35	52	10	0	100	56	63
Air Force	4	42	47	7	0	100	62	71
Total DoD	3	35	48	14	0	100	58	61
<u>1980 Youth</u>	5	39	34	19	3	100	59	61
Black^d								
<u>FY 1981 Accessions</u>								
Army	e	5	34	61	0	100	27	13
Navy	e	11	49	40	0	100	36	26
Marine Corps	e	11	57	32	0	100	38	30
Air Force	1	17	67	15	0	100	46	44
Total DoD	e	9	46	45	0	100	33	23
<u>1980 Youth</u>	e	7	21	46	26	100	17	14
Hispanic								
<u>FY 1981 Accessions</u>								
Army	e	7	38	55	0	100	31	18
Navy	1	21	53	25	0	100	48	42
Marine Corps	1	13	63	23	0	100	45	37
Air Force	e	24	64	12	0	100	53	52
Total DoD	1	14	50	35	0	100	41	33
<u>1980 Youth</u>	1	13	27	39	20	100	23	23

^a1980 youth population and FY 1981 nonprior service accessions restricted to persons born between January 1, 1957 and December 31, 1962 (18 through 23 years).

^bPersons scoring in AFQT Category V are not eligible for military enlistment.

^cWhite includes all racial/ethnic groups other than black or Hispanic.

^dBlack does not include persons of Hispanic origin.

^eLess than 0.5 percent.

Table 11

**Distribution of 1980 Youth Population and 1981 Nonprior Service Accessions by
Level of Education and Sex^a**

(Percent)

Population Group	Level of Education								
	Non-High School Graduate			GED High School Equivalency			High School Diploma Graduate or Above		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
FY 1981 Military Accessions:									
Army	14	3	13	3	2	2	83	95	85
Navy	10	^b	9	11	7	11	79	93	80
Marine Corps	12	^b	11	4	0	4	84	100	85
Air Force	3	2	2	6	8	7	91	90	91
Total DoD ^c	10	2	9	6	4	5	84	94	85
1980 Youth	24	20	22	4	3	4	72	77	74

SOURCE: Table C-2, Appendix C.

^aRestricted to persons in the sample born between January 1, 1957 and December 31, 1962
(18 through 23 years at time of testing, July-October 1980).

^bLess than 0.5 percent.

^cMay not sum to 100 percent due to rounding.

Table 12 displays the educational distributions of FY 1981 military accessions and 1980 youth by racial/ethnic group. It can be seen that the relative proportion of white recruits in the Military Services with a high school diploma is fairly similar to the comparable proportion of white youth in the general population—ranging from 79 percent in the Navy to 90 percent in the Air Force, compared with 80 percent of civilian youth. At the same time, the proportions of black and Hispanic recruits with a high school diploma exceed the comparable proportions of black and Hispanic youth who are high school graduates in the general population—and by a considerable margin. About six out of 10 black youth were high school graduates at the time of testing, compared with nine out of 10 black recruits during FY 1981. Just over half (55 percent) of Hispanic youth had completed high school, in comparison with over eight out of 10 Hispanic recruits.

In addition to AFQT and educational level, comparisons of "quality" can be made with two other measures—Service aptitude composites and estimates of reading ability. Although these measures are presented for contemporary youth subgroups in Section 4, similar data are not available for FY 1981 military accessions for two reasons. First, each Service uses its own set of aptitude composites. Even though three composites are common across Services, other composites differ in terms of number, name, and subtest content. For example, the Army has nine composites, while the Navy, Marine Corps, and Air Force have nine, seven, and four, respectively. Each Service has developed its own composites to maximize utility in predicting success in Service-specific training courses. Thus, comparisons across Service composites could not be meaningfully interpreted without the exact definition of each composite and the cluster

of training courses for which they are used. Second, comparable estimates of reading grade level are not available for all FY 1981 accessions, because many individuals who entered Service during that year took a different version of ASVAB than the one administered to the 1980 youth population. (Some recruits were tested with ASVAB Forms 6 and 7 in FY 1980, but postponed entry into active duty until the following year through enrollment in the Delayed Entry Program.) Consequently, reading grade levels can not be estimated for them on the same basis as for recruits who actually tested and entered the military in FY 1981 and for the youth population.

Table 12

Distribution of 1980 Youth Population and 1981 Nonprior Service Accessions by Level of Education and Racial/Ethnic Group^a

(Percent)

Population Group	Level of Education								
	Non-High School Graduate			GED High School Equivalency			High School Diploma Graduate or Above		
	White ^b	Black ^c	Hispanic	White	Black	Hispanic	White	Black	Hispanic
FY 1981 Military Accessions									
Army	15	7	9	3	2	3	82	92	88
Navy	10	4	8	11	6	11	79	89	81
Marine Corps	12	8	9	4	2	4	84	90	87
Air Force	3	1	2	7	4	6	90	95	92
Total DoD ^d	10	5	7	7	3	6	83	92	87
1980 Youth	16	32	42	4	4	3	80	64	55

SOURCE: Table C-2, Appendix C.

^aRestricted to persons in the sample born between January 1, 1957 and December 31, 1962.

^bWhite includes all racial/ethnic groups other than black or Hispanic.

^cBlack does not include persons of Hispanic origin.

^dMay not sum to 100 percent due to rounding.

Section 4

ANALYSES OF SUBGROUPS IN THE 1980 YOUTH POPULATION

The ASVAB scores of subgroups within the profile study youth population were selectively compared on the basis of AFQT, aptitude composites common across Services, and reading ability. The demographic variables selected for analysis were age, sex, race/ethnicity, level of education, socioeconomic status (mother's education), and geographic region.

The AFQT comparison measures are the mean AFQT percentile scores of the profile study sample.¹ The common aptitude composites are Mechanical (M), Administrative (A), General (G), and Electronics (E). The individual subtests that comprise these composites are shown in Table 13. Reading ability estimates, expressed in terms of grade levels,

Table 13

Common Aptitude Composites and Their Component ASVAB Subtests (Forms 8, 9, and 10)

Common Aptitude Composites	ASVAB Subtests
Mechanical (M) ^a	Mechanical Comprehension Automotive-Shop Information General Science
Administrative (A)	Coding Speed Numerical Operations Paragraph Comprehension Word Knowledge
General (G)	Arithmetic Reasoning Paragraph Comprehension Word Knowledge
Electronics (E)	Arithmetic Reasoning Electronics Information General Science Mathematics Knowledge

^aThe Administrative, General, and Electronics composites are the same for all four Services. For the purpose of population subgroup analyses, this report uses the Air Force version of the Mechanical composite.

¹ Most data on AFQT are reported in terms of percentile scores. For this analysis, the raw AFQT scores of individuals were converted to AFQT percentile scores and the mean percentile scores for each subgroup were then calculated. The mean AFQT percentile scores show the average rank or position (relative to the World War II reference population) of individuals, on a scale of one to ninety-nine. For example, a mean AFQT percentile score of 40 for a certain subgroup indicates that, on the average, individuals within this subgroup score equal to or better than 40 percent of all individuals in the reference population.

were obtained for the profile study subgroups by converting ASVAB General composite scores to comparable scores on the Adult Basic Learning Examination (ABLE).¹

The results of the subgroup comparisons are presented primarily in bar charts and graphs. Detailed statistics and supporting data appear in the appendices. It should be kept in mind that analyses of subgroups employ average test scores; statistical treatments of various subpopulations often obscure the fact that many individuals score above or below the average for their particular group or any other group. No attempt is made here to explain or explore possible causative factors underlying subgroup differences,² but brief background discussions are included to provide a perspective for viewing subgroup differences.³

AGE

The results of the profile study, analyzed according to examinee age at time of testing, are consistent with prior work on the relationship between aptitude test scores and age. In general, test scores in the 1980 youth population increase with examinee age through 23 years old, the upper age limit of the profile.

Numerous studies have indicated that mental ability reaches a peak in early adulthood (the mid-20s). Longitudinal studies (where the same individuals are reexamined at fixed intervals) conducted since the early 1950s indicate a somewhat different pattern of intellectual growth and decline than that found in cross-sectional research (where individuals representing different generations are observed). Although there is still little longitudinal evidence concerning the shape of the so-called "age-curve," the data now imply (a) a pattern of intellectual growth through early adulthood; (b) general stability during the middle decades of life (with increases in certain abilities and decreases in others)

¹ ABLE is a battery of tests (vocabulary, spelling, reading, arithmetic/computation, and arithmetic/problem solving) designed to measure the educational achievement of adults who have not completed high school. ABLE covers 12 years of school achievement through the use of three separate levels of test batteries. Since the ASVAB General composite (which combines paragraph comprehension, word knowledge, and arithmetic reasoning subtests) correlates so highly ($r = .85$) with ABLE, it was possible to convert the General composite scores to scores on ABLE and then use these measures as estimates of reading grade level. The general methodology for developing these conversions is explained in Mathews, J.J., Valentine, L.D., & Sellman, W.S. *Prediction of reading grade levels of Service applicants from Armed Services Vocational Aptitude Battery (ASVAB)* (AFHRL-TR-78-82). Brooks Air Force Base, TX: Air Force Human Resources Laboratory, December 1978.

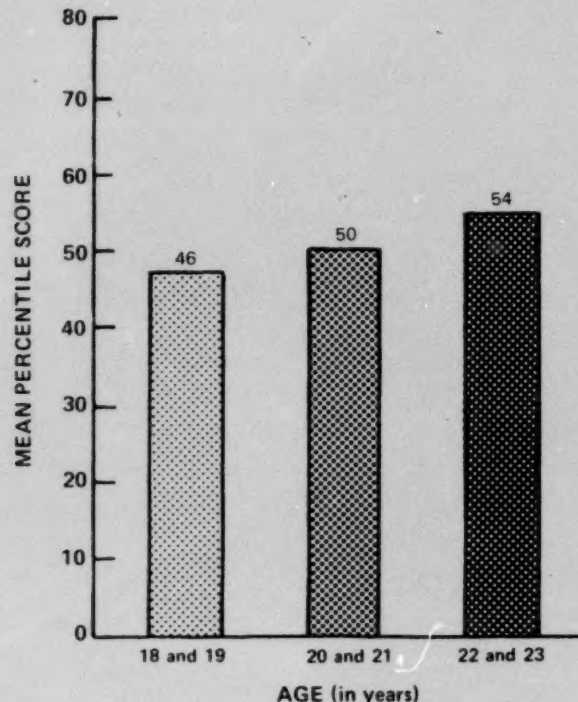
² An analysis and discussion of causative factors can be found in Bock, R.D., & Moore, E.G.J. *The profile of American youth: Demographic influences on ASVAB test performance*. Chicago: National Opinion Research Center, December 1981. Bock and Moore analyzed the data from the Profile of American Youth study on the 10 subtests that comprise the ASVAB. The present analysis concentrates upon AFQT and aptitude composites. This difference in analytical focus should be considered in comparing results across the two studies.

³ The interested reader can find a somewhat more detailed summary of the subject and a list of references in Eitelberg, M.J. *Subpopulation differences in performance on tests of mental ability: Historical review and annotated bibliography* (Technical Memorandum 81-3). Washington, D.C.: Directorate for Accession Policy, Office of the Secretary of Defense, August 1981. Comprehensive treatments of the topic can also be found in a number of works within the fields of differential psychology, educational psychology, and psychological testing cited in the report bibliography.

(c) a gradual and minor decline beginning after the age of 50; and (d) increased decline during the 70s and 80s. In addition, there is some evidence to suggest that intellectual decline is accelerated by the removal of educational (or intellectual) stimulation.^{1, 2, 3, 4}

As noted previously, this analysis focused on youth who were between 18 and 23 years old at the time of testing. The upper age limit of 23 years is the cut-off point for the profile study sample. Although data were available for younger age groups, the lower age limit of 18 years was selected for this study because it is the approximate age at which one is both eligible and most likely to enter military service.

AFQT Results. Mean AFQT percentile scores increased in direct correspondence with age, as shown in Figure 4. This pattern remained consistent across sex and racial/ethnic subgroups.



Source: Detailed statistics appear in Table C-1, Appendix C.

Figure 4. 1980 Youth Population Mean AFQT Percentile Score by Age.

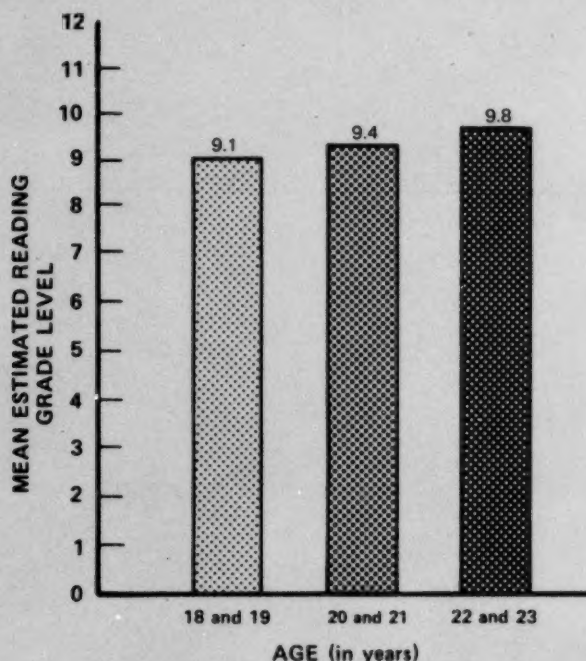
¹ Matarazzo, J.D. *Wechsler's measurement and appraisal of adult intelligence* (5th ed.). Baltimore: Williams and Wilkins, 1972.

² Bayley, N. "Development of mental abilities." In P. Mussen (Ed.), *Carmichael's manual of child psychology*, (Vol. I). New York: Wiley, 1970.

³ Kangas, J., & Bradway, K. "Intelligence at middle age: A thirty-eight year follow-up." *Developmental Psychology*, 1971, 5, 333-337.

⁴ Tyler, L.E. *The psychology of human differences* (3rd ed.). New York: Appleton-Century-Crofts, 1965.

Reading Ability Results. In the same manner as AFQT scores, estimates of reading grade level increased with each successive two-year age group.



Source: Detailed statistics appear in Table C-1, Appendix C.

Figure 5. 1980 Youth Population Mean Estimated Reading Grade Level by Age.

Persons in the 18 and 19 age group read, on the average, at the lower ninth-grade level (9.1). The average reading grade level increased for 20- and 21-year-olds by about three months (9.4). Similarly, 22- and 23-year-olds had a mean reading grade level about four months higher (9.8) than their younger counterparts.

Average years of education completed for the three two-year age groups were: 18 and 19 years old, 10.9 years; 20 and 21 years old, 12.0 years; and 22 and 23 years old, 12.6 years.

SEX

In general, profile study males and females performed similarly on the AFQT. Sex differences were found on the aptitude composites, with males scoring higher, on the average, on Mechanical, General, and Electronics composites and females scoring higher on the Administrative composite. As with most of the data from this study, these results were consistent with previously published studies on aptitude differences.

Many standardized tests of general aptitude are designed to eliminate (or counter-balance) items or subtests that result in systematically higher scores for one sex over the other. The effort to minimize or balance differential factors is based on a realization that there is no clear understanding of which specific test items are the best indicators of general ability, and a belief that no special "advantage" in measured performance on these tests should be given to either sex.

Nevertheless, the consistent trend has been that males tend to excel on tests of mathematical reasoning (quantitative ability), spatial abilities, and mechanical/science aptitudes whereas females tend to excel on tests involving verbal fluency or the mechanics of language, memory abilities, perceptual speed, and manual dexterity.^{1,2}

AFQT Results. The AFQT measures verbal and quantitative abilities in approximately equal proportion. This balance reduces the likelihood of sex-related differences in test performance. In fact, males and females in the 1980 youth population achieved similar AFQT scores.

Overall, males had a mean AFQT percentile score of 50.8; females were slightly lower, with a mean percentile score of 49.5. It can be seen in Figure 6 that the mean AFQT percentile scores of males and females were similar for the two younger age groups. For the age group 22-and-23-years, a larger average difference occurred, with males surpassing females by 4 percentile points.

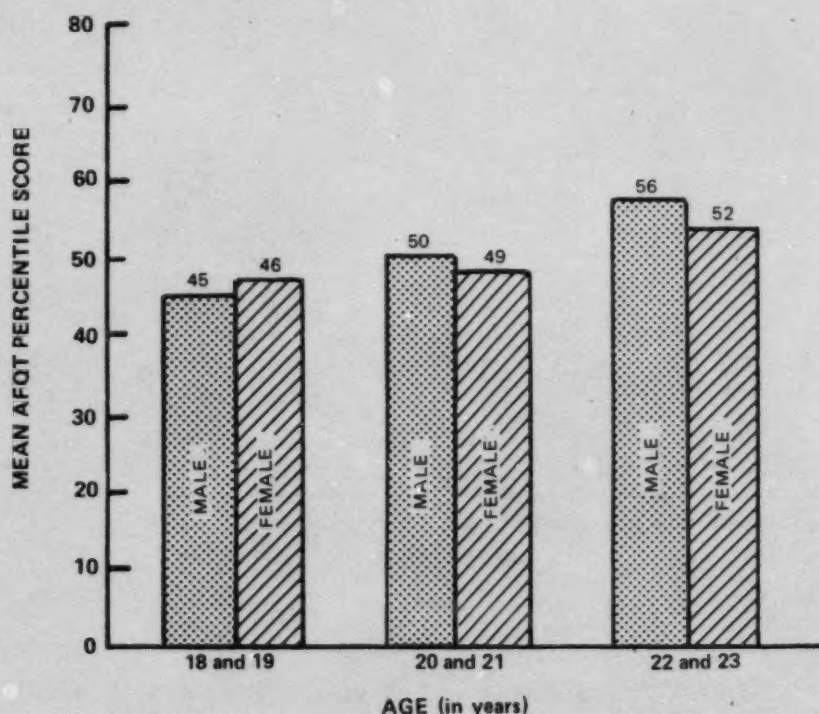
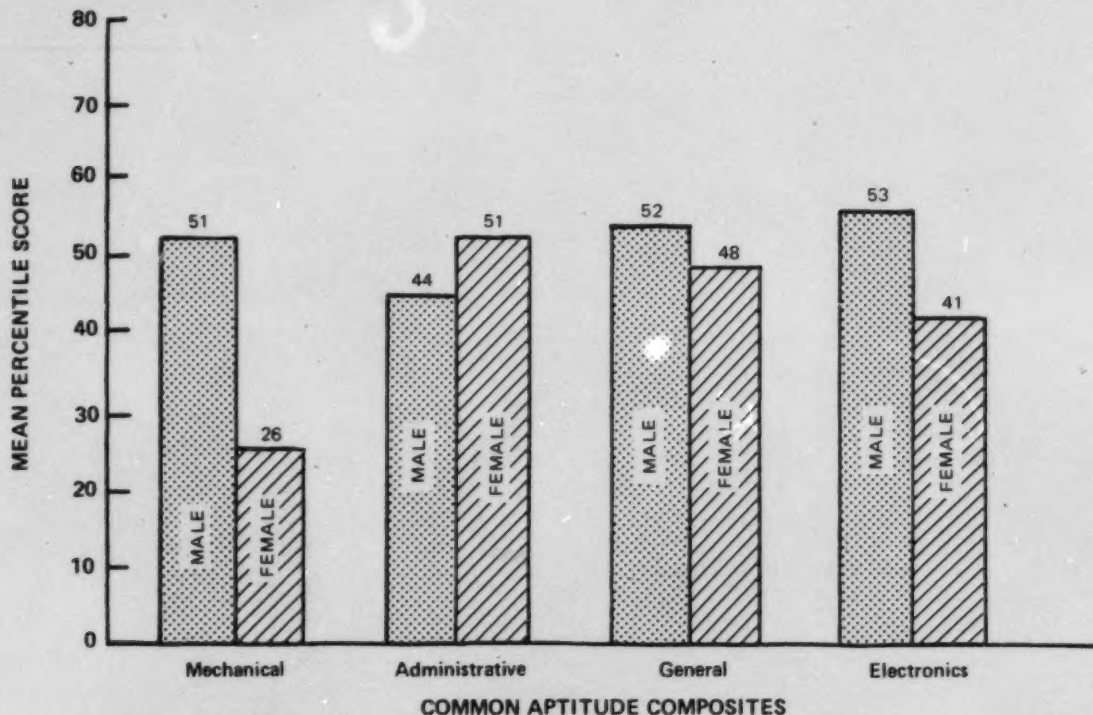


Figure 6. 1980 Youth Population Mean AFQT Percentile by Age and Sex.

¹ Tyler, L.E. *The psychology of human differences* (3rd ed.). New York: Appleton-Century-Crofts, 1965.

² Maccoby, E.E., & Jacklin, C.M. *The psychology of sex differences*. Stanford, CA: Stanford University Press, 1974.

Aptitude Composite Results. Sex differences on the common Service composites are presented in Figure 7. The widest gap between the scores of males and females occurred on the Mechanical composite—where the mean percentile score for males (51) was nearly double the mean percentile score for females (26). Males also outperformed females on the Electronics composite (a mean score of 53 compared with a score of 41 for females) and, to a lesser degree, on the General composite. Females, on the other hand, achieved a higher mean percentile score than did males on the Administrative composite (51 compared with 44 for males).



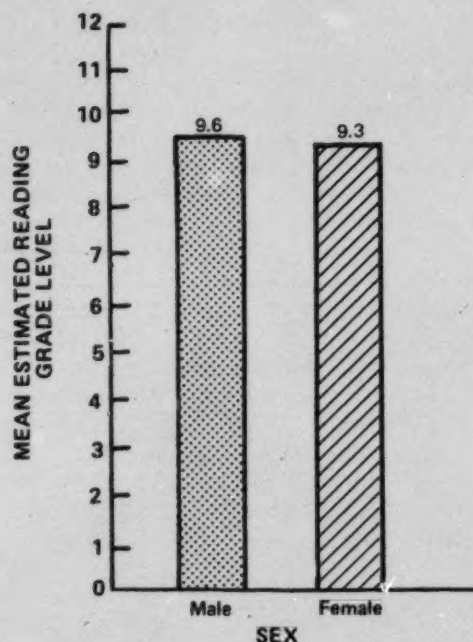
Source: Detailed statistics appear in Tables C-10 through C-13, Appendix C.

Figure 7. 1980 Youth Population Mean Percentile Scores on Common Aptitude Composites by Sex.

Reading Ability Results. As shown in Figure 8, the mean estimated reading grade level for the total sample of males (9.6) was higher than the score for females (9.3) by three months. By point of further comparison, the average years of education completed by the profile study population (at time of testing) were 11.8 for males and 11.9 for females.

RACE/ETHNICITY

The profile study classified the youth population into three groups, selected primarily because they represent the largest relative racial/ethnic subgroups within the general



Source: Detailed statistics appear in Table C-6, Appendix C.

Figure 8. 1980 Youth Population Mean Estimated Reading Grade Level by Sex.

population. The groups are: white and others (including all non-Hispanic and non-black racial/ethnic youth), black (non-Hispanic), and Hispanic.

The category defined as "white and others" included Native Americans, Pacific Islanders, and persons of Asian ancestry. Since the data were weighted and the proportion of "non-white" members of this group are so small in comparison with whites, the difference between the combined group and a "white only" group are negligible. For the purposes of this report, references to "white" mean "white and other" racial/ethnic groups.

The Hispanic category includes several separate subgroups (e.g., Mexican-Americans, Puerto Ricans, Cubans and other Latin Americans, Spanish, and Portuguese) variously described as being of "Hispanic" origin.

Results of the profile study racial/ethnic group comparison are consistent with studies previously reported in the testing literature. In general, the average AFQT score for whites surpassed those of the two minority groups. Hispanics scored, on the average, somewhat higher than blacks. Racial/ethnic differences in reading grade level were found to parallel differences in AFQT scores. White and Hispanic males had slightly higher scores than did their female counterparts. There was virtually no difference in scores between black males and black females.

Attempts to measure racial differences in test performance in the civilian sector can be traced back as far as the late nineteenth century.^{1, 2, 3, 4, 5} Most studies of racial/ethnic group performance in this country have focused primarily on the differential abilities of white and black children and young adults.

Published evidence suggests that on standardized tests of verbal and quantitative ability, (a) whites, on the average, score higher than blacks; (b) average group differences remain fairly constant during the school years (the smallest differences occur at the very young ages); (c) blacks perform relatively better on verbal tests than on non-verbal tests; (d) the socioeconomic, geographic, and educational correlates for racial minority groups and whites are generally similar (though there are some differences in the magnitude of correlation); and, further, (e) the differences in scores between individuals of the same race generally exceed the differences in average scores of separate races.^{6, 7, 8, 9}

Aptitude testing by the American military during World War I gave impetus to development of the Army General Classification Test (AGCT) of World War II. The stated purpose of the AGCT was to "sort out new arrivals according to their ability to learn quickly the duties of a soldier" while "keeping at a minimum items greatly influenced by amount of schooling and by cultural inequalities."¹⁰

During the World War II mobilization period (1941-46), approximately 84 percent of all black soldiers scored in AGCT Categories IV and V (combined), compared with 32 percent of white soldiers. Thirty-three percent of whites and 13 percent of blacks were in Category III; about 35 percent of whites, compared with 3 percent of blacks, placed in Categories I and II (combined).^{11, 12}

More recent data on the AFQT show that usually about eight to 10 percent of non-white male enlisted accessions have placed in the "above-average" AFQT categories (I and II) since the end of the Korean War. This compares with approximately 40 percent of

¹ Coleman, J.J., Campbell, E.Q., Hobson, C.J., McPartland, J., Mood, A.M., Weinfeld, F.C., & York, R.L. *Equality of educational opportunity*. Washington, D.C.: Government Printing Office, 1966.

² Fifer, G. "Social class and cultural group differences in reverse mental abilities." In A. Anastasi (Ed.) *Testing problems in perspective*. Washington, D.C.: American Council on Education, 1966.

³ Flaughner, R.L. *Minority versus majority group performance on an aptitude test battery* (RDR-71-72, No. 1). Princeton, N.J.: Educational Testing Service, August 1971.

⁴ Wing, H. "Profiles of cognitive ability of different racial ethnic and sex groups on a multiple abilities test battery." *Journal of Applied Psychology*, 1980, 3, 289-298.

⁵ Samuda, R.J. *Psychological testing of American minorities: Issues and consequences*. New York: Dodd, Mead, 1975.

⁶ Miller, K.S., & Dreger, R.M. (Eds.) *Comparative studies of blacks and whites in the United States*. New York: Seminar Press, 1973.

⁷ Jencks, C. *Inequality: A reassessment of the effect of family and school in America*. New York: Basic Books, 1972.

⁸ Jensen, A.R. *Bias in mental testing*. New York: The Free Press, 1980.

⁹ Loehlin, J.D., Lindzey, G., & Spuhler, J.N. *Race differences in intelligence*. San Francisco: W.H. Freeman, 1975.

¹⁰ Staff, Personnel Research Section. "The Army General Classification Test." *Psychological Bulletin*. 1945, 42(10), 760-768.

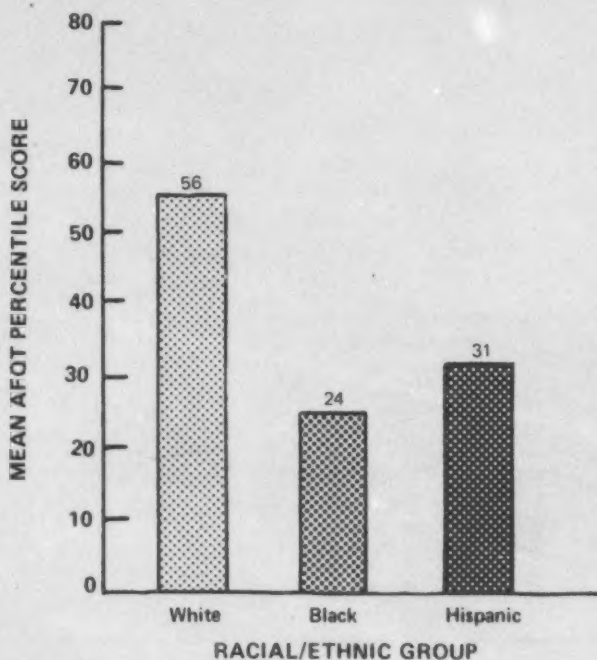
¹¹ Lee, U.G. *U.S. Army in World War II, special studies, the employment of Negro troops*. Washington, D.C.: Government Printing Office, 1966.

¹² Milton, H.S. (Ed.) *The utilization of Negro manpower in the Army* (Report ORO-R-11). Chevy Chase, Md.: Operations Research Office, The Johns Hopkins University, 1955.

white male accessions. Over the period, the average (median) AFQT score for non-white male accessions was about 25 percentile points below the average AFQT score for white male accessions.¹

As in the civilian testing experience, there is unanimity of results in military testing: at each age level and under a variety of social and geographical conditions, blacks, on the average, regularly score below whites.² The racial differences remain fairly constant from one geographical region to another.

AFQT Results. The mean AFQT percentile scores for the three racial/ethnic groups in this analysis are displayed in Figure 9. The average score for the white group exceeded those of the two minority groups by a considerable margin. Hispanics scored, on the average, somewhat higher than blacks.



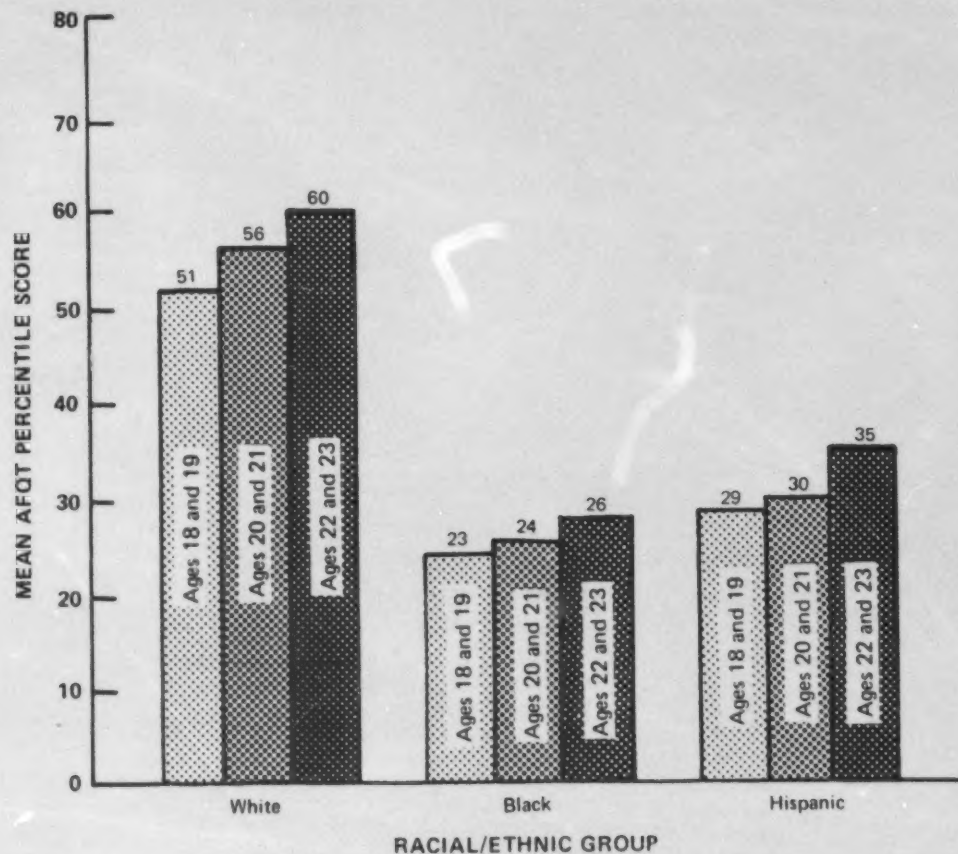
Source: Detailed statistics appear in Table C-1, Appendix C.

Figure 9. 1980 Youth Population Mean AFQT Percentile Score by Racial/Ethnic Group.

¹Eitelberg, M.J. *Subpopulation differences in performance on tests of mental ability: Historical review and annotated bibliography* (Technical Memorandum 81-3). Washington, D.C.: Directorate for Accession Policy, Office of the Secretary of Defense, August 1981.

²Scarr, S. *Race, social class, and individual differences in I.Q.* Hillsdale, N.J.: Lawrence Erlbaum Associates, 1981.

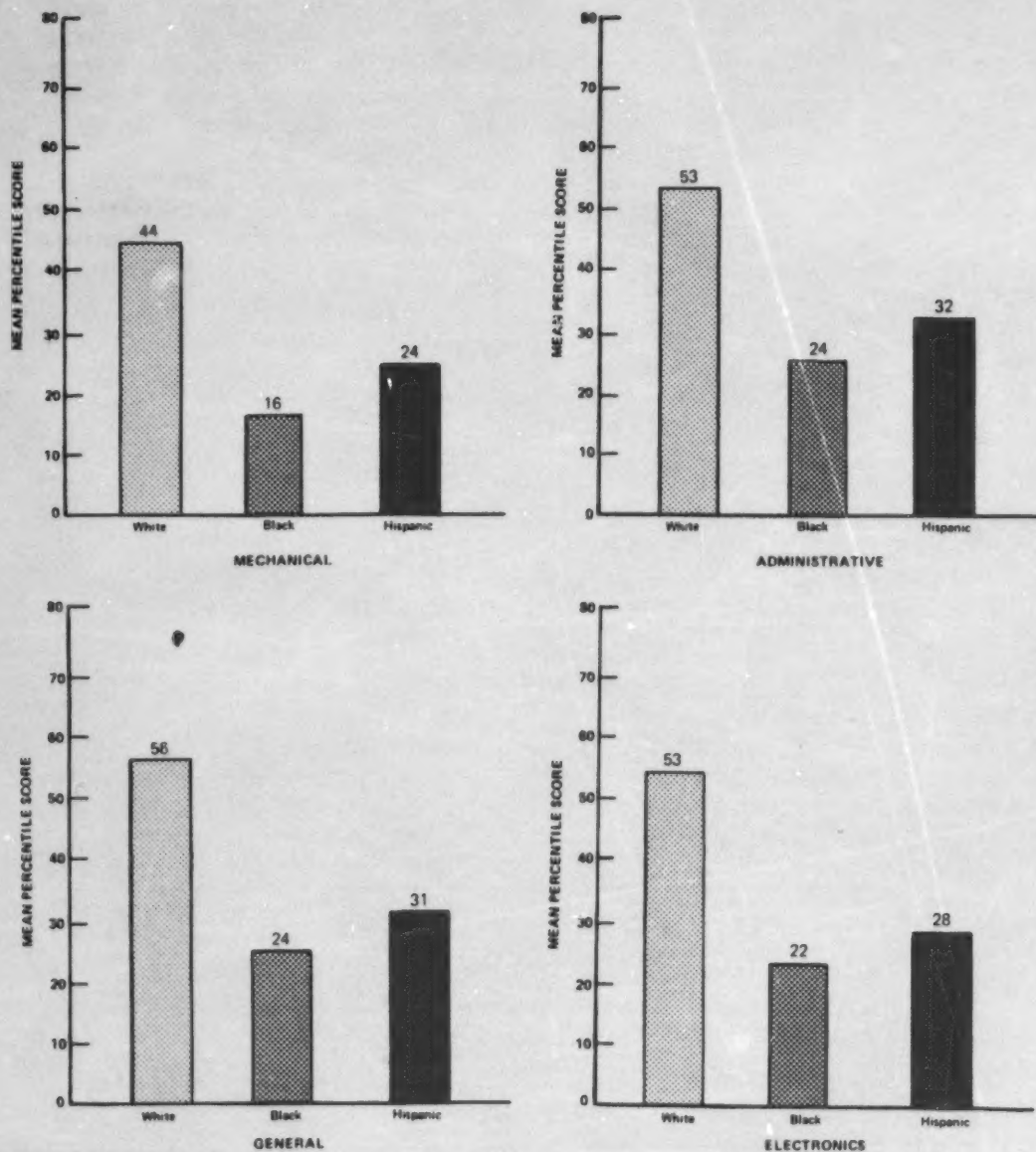
Inspection of the mean AFQT percentile scores of racial/ethnic groups by two-year age categories shows that the average rate of age-related improvement in test performance was slightly different between these groups. Both Hispanics and blacks increased one percentile point between the age categories of 18-19 and 20-21; whites, on the other hand, improved by five points. Hispanics who were 22 and 23 scored, on the average five points higher than their younger counterparts. It should be noted that a strong relationship exists between age and educational level across the three racial/ethnic groups.



Source: Detailed statistics appear in Table C-1, Appendix C.

Figure 10. 1980 Youth Population Mean AFQT Percentile Score by Racial/Ethnic Group and Age

Aptitude Composite Results. The mean percentile scores of the racial/ethnic groups on the four aptitude composites are displayed in Figure 11. The score differences among racial/ethnic groups were similar in magnitude across the common aptitude composites. The average scores for whites were substantially higher than the scores for either Hispanics or blacks, with the largest differences on the General and Electronics composites.



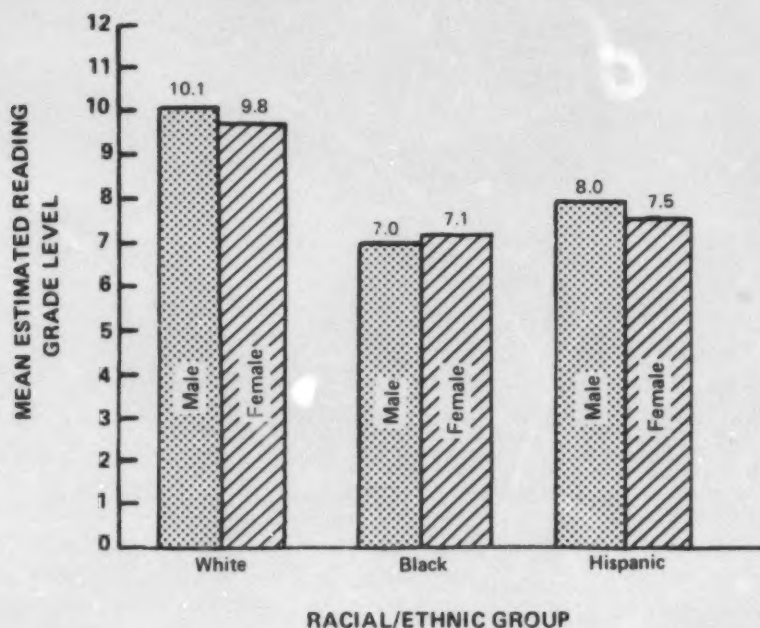
COMMON APTITUDE COMPOSITES

Source: Detailed statistics appear in Tables C-10 through C-13, Appendix C.

Figure 11. 1980 Youth Population Mean Percentile Scores on Common Aptitude Composites By Racial/Ethnic Group.

Whites scored, on the average, 25 percentile points higher than Hispanics on both the General and the Electronics composites, and about 20 points higher than Hispanics on the Mechanical and the Administrative composites. In addition, whites scored from 28 to 32 percentile points higher than blacks across all four composites while Hispanics scored from 6 to 8 points higher than blacks. (Racial/ethnic group scores by sex on the common aptitude composites appear in Appendix C, Table C-10.)

Reading Ability Results. The estimated reading grade levels of the racial/ethnic groups (by sex) are shown in Figure 12. The racial/ethnic groups rank in the same order found in previous analyses. White and Hispanic males had higher scores than their female counterparts, but there was virtually no difference in the scores between black males and black females.



Source: Detailed statistics appear in Table C-6, Appendix C.

Figure 12. 1980 Youth Population Mean Estimated Reading Grade Level by Racial/Ethnic Group and Sex.

White males had the highest estimated reading grade level (lower tenth grade), followed in order by white females (upper ninth grade), Hispanic males (lower eighth grade), Hispanic females (middle seventh grade), and black females and males (lower seventh grade). The average years of education completed for the racial/ethnic groups were 12.0 for whites, 11.0 for Hispanics and 11.5 for blacks.

LEVEL OF EDUCATION

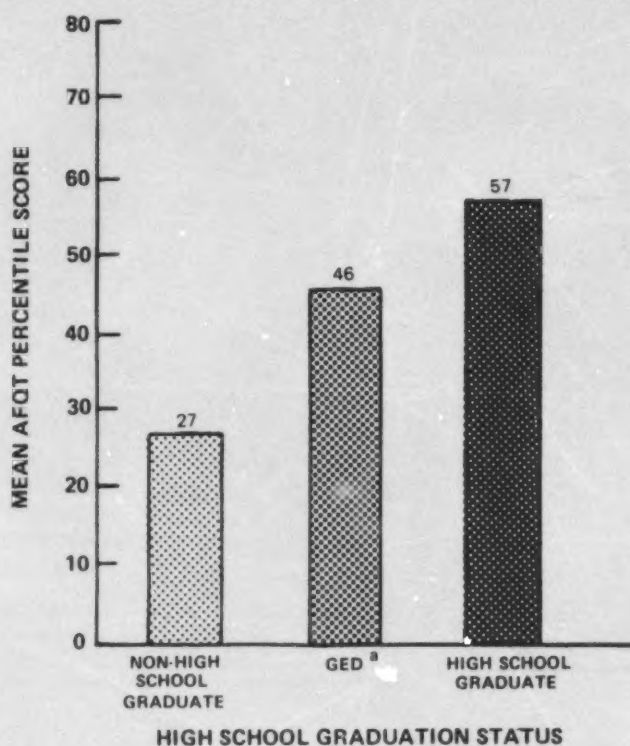
Aptitude test performance is strongly correlated with amount of schooling. Those who drop out of high school have lower average scores than do those who finish high school;

those who do not go on to college have lower average scores than those who do; and those who drop out of college have lower average scores than those who obtain college degrees.

There are, however, several problems involved in using years of formal education as a focus of analysis. There are differences in the quality of instruction from geographical region to region, school to school, and other related factors. In addition, education variables are not easily isolated or separated from other variables (e.g., age and socioeconomic status).

For the present analysis, educational attainment is defined according to high school graduation status. The three categories of graduation status are: (a) non-high school graduate (including, in some cases, high school students as well as drop-outs); (b) recipient of the General Educational Development (GED) high school equivalency certificate; and (c) high school diploma graduate (also including all persons, regardless of high school graduation status, with education at the college level).

AFQT Results. Mean AFQT percentile scores showed a clear relationship to the three levels of education, as shown in Figure 13. Non-high school graduates had the lowest



Source: Detailed statistics appear in Table C-2, Appendix C.

^aGeneral Educational Development (GED) high school equivalency.

Figure 13. 1980 Youth Population Mean AFQT Percentile Score by High School Graduation Status.

average score (27) and high school graduates had the highest score (57). GED recipients scored between these two groups (46). This general hierarchy of average test scores based on educational attainment was consistent for the three racial/ethnic groups examined.

Aptitude Composite Results. The composite scores of males and females by high school graduation status are depicted in Figure 14. GED recipients achieved average scores on the Mechanical composite that were identical to the average score for high school graduates of the same sex. For composites where males scored higher than females, the greatest absolute differences were generally found at the high school graduate level. On the Electronics composite, males with a GED performed at the same level as did females with a high school diploma. On the Mechanical composite, males scored higher than females regardless of educational level. On the Administrative composite, females scored approximately five points higher than did males at each educational level.

SOCIOECONOMIC STATUS

In the profile population, mother's level of education was a very strong predictor of AFQT and reading ability. There was a direct correlation between mother's educational level and AFQT score. Social class or socioeconomic status (SES) differences have been reported in numerous studies from the earliest days of psychological testing. During World War I, average scores on the Army enlistment test had a clear relationship to pre-service employment. Highest scores were obtained by those in professional occupations (e.g., engineer, accountant), ranging down to those who had worked as unskilled laborers (in preservice jobs) at the bottom of the scale. Studies of AGCT scores from World War II revealed a similar pattern of test scores for occupational categories.

When children are classified on the basis of their father's occupation, the same sort of differentiation in test scores is apparent. Children of parents in the professions generally score highest on aptitude tests, and children of day laborers and unskilled workers generally score lowest.

In general, studies that have examined social class differences are consistent. Adults and children from more privileged homes perform better, on the average, than do those from less privileged homes. The relationship between socioeconomic status and performance on ability tests is one of the most consistent and least questioned outcomes of standardized testing.^{1, 2}

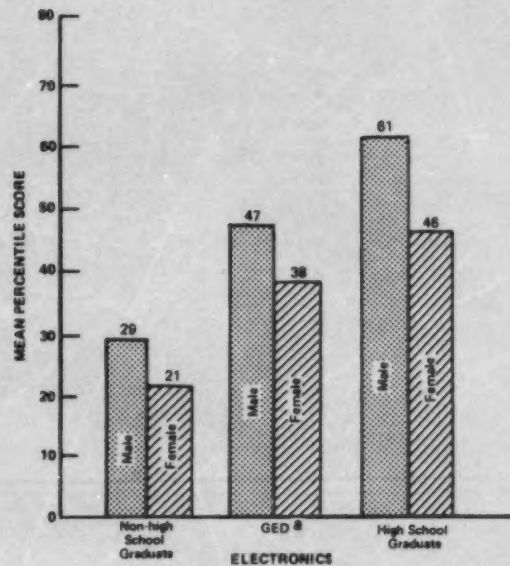
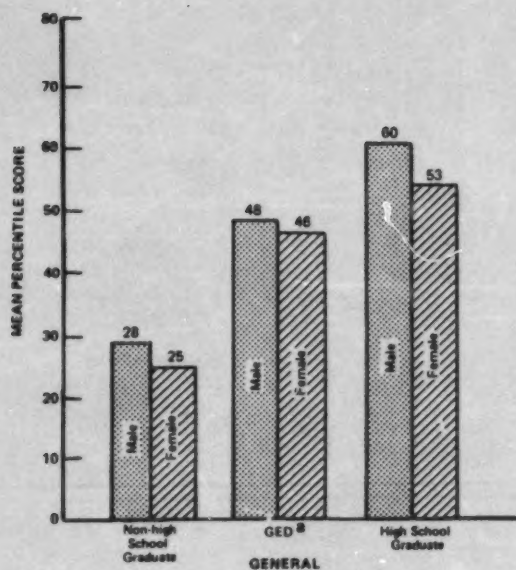
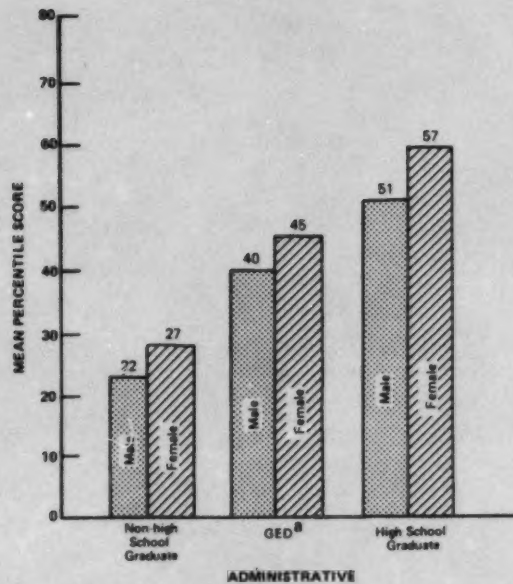
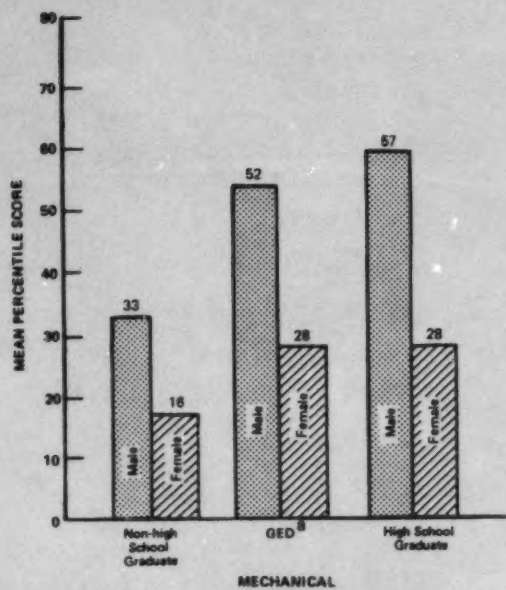
The socioeconomic status of children and adolescents is typically indexed using mother's education, father's education, average family income, and father's occupational status. None of these four variables alone explains all of the variation in ability attributable to "family background." Nevertheless, there is a strong correlation between the variables, and research has shown that each affects ability in a different manner, but to a similar degree.^{3, 4} Recent analysis of profile study data suggests that the measured effects of mother's education on ASVAB performance approximate the measured effects

¹ Anastasi, A. *Differential psychology: Individual and group differences in behavior* (3rd ed.) New York: MacMillan, 1958.

² Tyler, L.E. *The psychology of human differences* (3rd ed.). New York: Appleton-Century-Crofts, 1965.

³ Sewell, W.H., & Hauser, R.M. *Education, occupation and earnings*. New York: Academic Press, 1975.

⁴ Featherman, D.L. "Schooling and occupational careers: Constancy and change in wordly success." In G. Brian & J. Kagan (Eds.) *Constancy and change in human development*. Cambridge, MA: Harvard University Press, 1980.



COMMON APTITUDE COMPOSITES

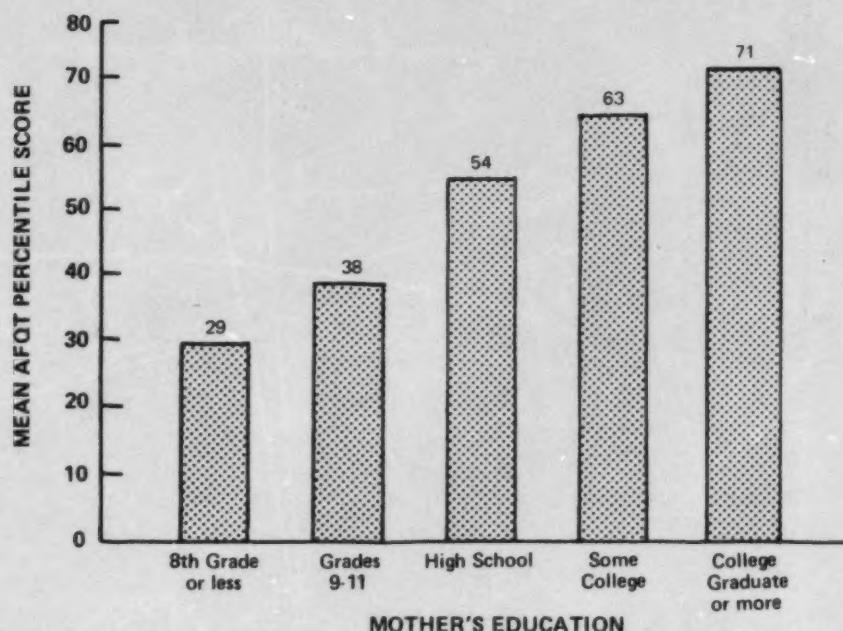
Source: Detailed statistics appear in Tables C-10 through C-13, Appendix C.

^aGED is General Educational Development (GED) high school equivalency.

Figure 14. 1980 Youth Population Mean Percentile Scores on Common Aptitude Composites by High School Graduation Status and Sex.

of all four variables combined.¹ For the present study of subgroup differences, then, mother's education was used in place of an SES index as a general indicator of family background.

AFQT Results. The mean AFQT percentile scores of the profile study sample by five categories of mother's education are shown in Figure 15. Average scores increased with increases in the level of mother's education. Indeed, the differences between the average scores of successive categories were substantial—especially between individuals whose mothers completed grades 9-11 (mean AFQT percentile score of 38) and those whose mothers completed high school but did not attend college (mean AFQT percentile score of 54). An average difference of 17 percentile points was found between persons with mothers who graduated from high school (no college) and those with mothers who graduated from college (mean score of 71). Differences based on mother's education were consistent across sex and racial/ethnic groups.



Source: Detailed statistics appear in Table C-3, Appendix C.

Figure 15. 1980 Youth Population Mean AFQT Percentile Score by Mother's Education.

GEOGRAPHICAL REGION

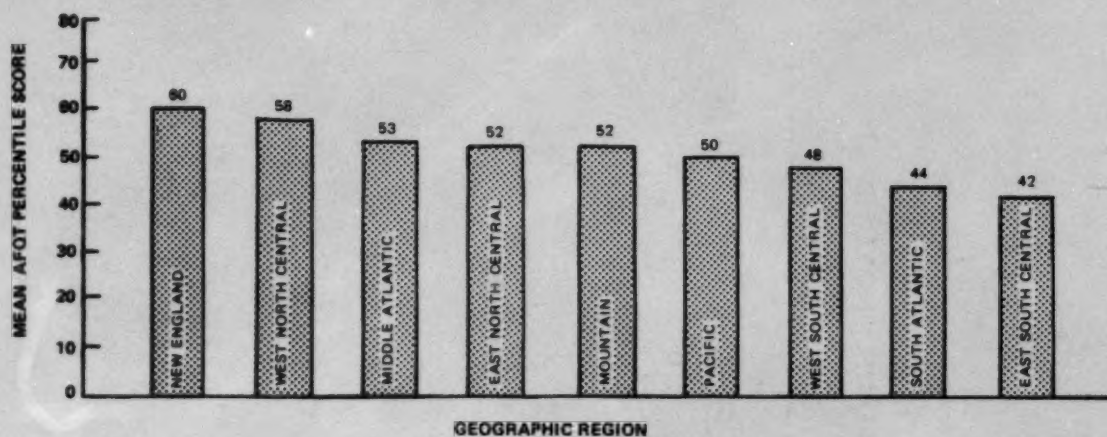
Regional differences in test performance have been commonly found. Generally, average scores on aptitude and achievement tests are lowest in the South, and

¹ Bock, R.D., & Moore, E.G.J. *The profile of American youth: Demographic influences on ASVAB test performance*. Chicago: National Opinion Research Center, December 1981.

highest in the Northeast. Such differences are related to other factors, such as urban-rural composition, quality of education, and socioeconomic and subcultural differences.¹

The geographical regions selected for comparison were the nine regional divisions of the United States as defined by the U.S. Bureau of the Census.² The states that comprise these divisions are displayed in Appendix C, Table C-4.

AFQT Results. The mean AFQT percentile scores by geographical residence of examinees at the time of testing are shown in Figure 16. The geographical divisions, when arranged in order of highest to lowest average AFQT scores, tend to form a regional pattern. Individuals in New England had the highest average scores, followed in order by those in West North Central, Middle Atlantic, East North Central, Mountain, and Pacific. Average scores of those in the South (i.e., West South Central, South Atlantic, and East South Central) were the lowest.



Source: Detailed statistics appear in Table C-5, Appendix C. A list of the states that comprise the geographic regions appears in Table C-4, Appendix C.

Figure 16. 1980 Youth Population Mean AFQT Percentile Score by Geographic Region.

¹Tyler, L.E. *The psychology of human differences* (3rd ed.). New York: Appleton-Century-Crofts, 1965.

²The U.S. Bureau of the Census also uses an "other" category, which includes outlying areas and countries, dependencies, and areas of special sovereignty. The profile study entailed the testing of individuals in these "other" areas (as well as the nation of Mexico). However, because of wide differences in the culture and environment of individual areas within the "other" category, the present analysis concentrated on the 50 states.

Section 5

SUMMARY

The Profile of American Youth was a major research effort designed to establish new national norms for the ASVAB and to compare new recruits with the current youth population. It marks the first time that a vocational aptitude test has been given to a nationally representative sample. The profile data base contains a wealth of information that will benefit both military and civilian manpower analysts for many years to come.

METHODOLOGY

DoD contracted with the National Opinion Research Center (NORC) of the University of Chicago to administer the ASVAB during July through October 1980 to a national probability sample of nearly 12,000 young men and women. The young people tested were representative of all youth in the United States, ages 16 to 23. The sample contained individuals from both urban and rural areas, youth from all major census regions, and approximately equal proportions of males and females. Certain key groups such as Hispanics, blacks, and economically disadvantaged whites were oversampled, allowing for more precise subgroup analyses. Since the Services primarily recruit individuals who are 18 years of age and older, analyses for this study focused upon those who were 18 through 23 years of age at the time of testing.

COMPARISON OF THE 1980 YOUTH POPULATION WITH THE WORLD WAR II REFERENCE POPULATION

A comparison of the Armed Forces Qualification Test (AFQT) category distributions of the 1980 male youth population and the World War II reference population indicated that 40 percent of the 1980 group were in the two above-average categories, compared with 36 percent of the reference population. There was no difference of consequence between the proportions of contemporary male youth and the reference population who scored in the two below-average categories. The median AFQT percentile score for the 1980 male youth population was 53, compared with 50 for the reference population.

Historical Trends

Traditionally, the Department of Defense has used two criteria for gauging the quality of new recruits: AFQT scores and level of education. These two criteria were used to compare military accessions with the 1980 youth population.

AFQT. From FY 1962 through FY 1973, the proportions of new recruits who scored in the various AFQT categories remained fairly constant. An increase in AFQT scores occurred during the period FY 1974 through FY 1976. This rise in test scores

was a function of several factors, including the end of the Vietnam Conflict and the consequent drop in the number of accessions required, heightened recruiting efforts in connection with the end of conscription, and an increase in military pay and compensation. In FY 1977, the AFQT scores of recruits dropped sharply. Major factors that contributed to this decline were an improved national economy following the recession of 1974-75, a relative reduction in military pay and benefits, and the error in calibration of the ASVAB.

Education Level. Possession of a high school diploma is an important indicator of the capacity of individuals to adjust successfully to military life. A person who does not graduate from high school is twice as likely to leave the military before completing the first three years of service as is a high school diploma graduate. Consequently, recruiting programs have traditionally emphasized efforts to enlist high school diploma graduates. The proportion of high school graduates has increased over the past decade in all Services. Since 1972, nearly three-fourths of new recruits have been high school graduates.

COMPARISON OF FY 1981 MILITARY ACCESSIONS WITH THE 1980 YOUTH POPULATION

AFQT. In FY 1981, there was a dramatic increase in the proportion of recruits who scored average or above on the AFQT. This increase resulted from a combination of elements: intensified efforts by the Services to recruit highly qualified youth; enhanced military pay, compensation, bonuses, and benefits; more positive attitudes of the American public toward the military; and an increase in youth unemployment.

In general, military recruits during FY 1981 scored higher on the AFQT than did contemporary youth. Approximately the same proportion of individuals with above-average scores were found in both the 1980 youth population and the group of new accessions. However, the proportion of accessions scoring in the average range was considerably higher than the comparable proportion of youth in the general population.

Eighty percent of all nonprior service accessions in FY 1981 received scores in AFQT Categories I-III, compared with 69 percent of the 1980 youth population. The median AFQT score for FY 1981 recruits (18-23 years) was 52 and the median score for 1980 youth was 51.

A comparison of AFQT scores of the 1980 youth population and FY 1981 accessions, by selected demographic characteristics, showed variations in the representativeness of the sexes and racial/ethnic groups. In general, FY 1981 accessions of both sexes scored higher on the AFQT than did their counterparts in the profile study population. FY 1981 minority recruits scored higher than minorities in the youth population, but this was not the case for white youth.

Education Level. A comparison of the educational distributions of FY 1981 nonprior service accessions with the 1980 profile population showed that relatively more recruits than civilian youth were high school graduates. Approximately equal proportions of white recruits and 1980 profile study white youth had graduated from high school. The proportions of black and Hispanic recruits with a high school diploma exceeded the proportions in the youth population by a considerable margin.

COMPARISON OF SUBGROUPS WITHIN THE 1980 YOUTH POPULATION

The ASVAB scores of profile study subgroups were compared on the basis of AFQT, aptitude composites common across Services, and estimated reading ability. The demographic

variables analyzed were age, sex, race/ethnicity, level of education, socioeconomic status, and geographic region. The results of the subgroup analyses were generally consistent with the findings of published research.

The average AFQT percentile scores of the 1980 youth population increased with age. Estimates of reading grade level also increased with age. The average AFQT scores of males and females were quite similar. However, sex differences in average test scores were found on the aptitude composites. Males scored higher than females on the Mechanical, Electronics, and General composites; females outscored males on the Administrative composite.

AFQT percentile scores for whites were higher, on the average, than those recorded for either Hispanics or blacks. Hispanics, in turn, scored higher than blacks. This pattern of racial/ethnic group performance was the same on estimates of reading grade level and on the four aptitude composites analyzed.

Socioeconomic status, as measured by mother's education, was also related to AFQT performance. Individuals tended to score higher on the test in direct correspondence with advances in the amount of formal education completed by their mothers.

Average AFQT percentile scores were highest for youth in the New England and West North Central regions of the country, and lowest in the three southern regions. Youth in the East North Central, Middle Atlantic, Mountain, Pacific, and West South Central regions scored at approximately the level of the overall population median.

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Appendix A
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Table A-1
Intercorrelations Between ASVAB Subtests for
Profile Study Sample
(N=9173)

	ASVAB Subtest									
	AR	WK	PC	NO	GS	CS	AS	MK	MC	EI
AR	--									
WK	.71	--								
PC	.67	.80	--							
NO	.63	.60	.60	--						
GS	.72	.80	.69	.52	--					
CS	.51	.55	.56	.70	.45	--				
AS	.53	.52	.42	.29	.64	.22	--			
MK	.83	.67	.64	.62	.69	.52	.41	--		
MC	.68	.59	.52	.40	.70	.33	.74	.60	--	
EI	.66	.68	.57	.41	.76	.34	.75	.58	.74	--

AR = Arithmetic Reasoning
WK = Word Knowledge
PC = Paragraph Comprehension
NO = Numerical Operations
GS = General Science

CS = Coding Speed
AS = Auto and Shop Information
MK = Mathematics Knowledge
MC = Mechanical Comprehension
EI = Electronics Information

Appendix B

SOURCE TABLES FOR SECTION 3

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Table B-1

**Distribution of Male Nonprior Service Accessions by Armed Forces Qualification Test (AFQT)
Category and Service, Fiscal Years 1952-81
(Percent)^b**

Fiscal Year	Service																Total DoD			
	Army				Navy				Marine Corps				Air Force							
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
1952	6.9	20.4	28.7	44.1	5.5	24.0	37.1	33.4	5.7	21.3	30.5	42.6	6.9	23.8	36.0	33.4	6.4	22.0	32.3	39.2
53	7.0	22.9	29.4	40.7	6.8	28.3	37.5	27.4	4.9	23.1	37.8	34.2	9.0	28.1	36.0	26.9	7.2	24.1	31.5	37.2
54	9.7	25.9	34.9	29.8	7.4	27.2	39.7	25.7	4.2	20.5	40.9	34.4	6.5	25.5	41.2	26.8	8.2	25.3	36.9	29.6
1955	9.6	26.7	35.9	27.8	4.8	21.0	38.0	36.2	6.2	27.5	46.1	20.2	6.5	25.2	41.7	26.6	7.8	25.3	38.1	28.8
56	8.4	26.5	38.6	26.5	5.7	23.6	38.4	32.3	4.4	21.7	39.0	34.9	7.5	28.9	45.4	18.2	7.1	25.9	40.2	26.8
57	8.2	24.1	37.2	30.5	6.7	26.2	50.8	16.3	5.4	23.1	45.9	25.6	8.4	27.4	49.2	15.0	7.8	25.2	42.8	24.2
58	8.5	23.2	41.7	26.6	7.7	28.5	56.6	7.2	7.4	26.9	56.7	9.0	11.3	33.1	47.9	7.7	8.7	26.2	47.1	18.0
59	8.8	24.2	46.1	20.9	8.9	32.2	50.4	6.5	6.0	25.4	58.9	9.7	12.2	33.6	43.7	10.5	9.1	27.8	47.7	15.4
1960	8.2	24.1	50.7	17.0	7.5	29.3	56.1	7.1	5.3	22.3	56.0	16.4	10.3	32.5	45.5	11.7	8.2	26.9	51.3	13.6
61	6.1	27.4	53.3	13.2	5.7	34.6	49.7	10.0	4.8	31.2	56.9	7.1	6.7	34.8	42.4	16.1	6.1	31.3	49.7	12.9
62	5.8	27.3	44.5	22.4	5.5	34.2	48.5	11.8	4.4	32.5	54.1	9.0	8.5	40.9	43.4	7.2	6.2	31.8	45.7	16.3
63	5.1	26.7	46.7	21.5	6.4	36.9	51.1	5.6	4.9	37.5	53.7	3.9	7.7	38.2	45.7	8.4	6.0	32.5	47.8	13.7
64	5.7	28.0	46.4	19.9	6.1	34.9	48.0	10.9	4.6	32.8	53.4	9.2	8.7	41.0	46.2	4.1	6.3	32.1	47.1	14.5
1965	4.8	26.7	49.3	19.2	5.3	33.0	47.9	13.8	4.4	33.7	58.1	3.8	7.7	39.1	45.7	7.4	5.5	31.3	48.8	14.4
66	5.6	28.5	42.5	23.4	8.1	42.8	43.7	5.4	5.5	33.3	47.7	13.5	8.2	41.4	44.0	6.3	6.4	33.5	43.5	16.6
67	5.9	28.5	39.3	26.3	9.8	50.8	27.8	11.6	4.7	31.2	46.7	17.4	8.0	39.9	40.1	12.0	6.6	33.1	38.7	21.6
68	5.5	27.3	39.2	28.0	8.8	51.0	23.6	16.6	3.9	26.7	47.2	22.2	7.9	39.0	36.2	17.0	6.0	31.8	37.6	24.6
69	6.1	28.3	38.1	27.5	7.0	40.7	33.1	19.2	3.5	25.5	45.3	25.7	8.2	38.5	35.5	17.8	6.2	31.7	37.7	24.4
1970	5.2	28.0	41.0	25.8	6.1	38.6	38.9	16.4	2.9	24.4	48.5	24.2	8.1	38.6	35.1	18.1	5.3	30.5	41.0	23.2
71	5.1	27.6	42.1	25.2	6.1	39.6	40.2	14.0	2.5	23.4	55.0	19.1	5.9	33.6	42.7	17.8	5.1	30.0	43.1	21.8
72	4.0	28.4	48.8	18.8	4.5	32.5	42.8	20.2	2.2	22.1	55.6	20.1	5.4	37.3	48.6	8.7	4.2	30.2	48.1	17.5
73	3.4	27.5	51.8	17.3	3.6	32.1	48.5	15.7	2.1	22.6	60.8	14.6	5.5	38.5	51.8	4.2	3.7	30.1	52.1	14.1
74	3.6	27.5	51.1	17.8	2.7	33.7	60.3	3.3	2.7	30.7	59.0	7.5	4.7	40.8	53.9	0.6	3.0	32.2	54.5	10.2
1975	4.5	30.3	55.1	10.0	2.8	35.2	57.2	4.8	3.0	33.8	59.8	3.5	3.9	40.0	55.6	0.4	3.5	34.0	56.3	6.1
76 ^a	3.2	25.7	54.5	16.6	4.9	39.4	47.5	8.2	3.0	35.9	54.4	6.8	5.4	46.0	47.6	1.0	3.9	33.9	51.7	10.5
77	2.3	17.9	36.4	43.4	5.9	33.4	40.8	19.9	3.3	26.5	45.6	24.6	7.1	46.4	41.6	5.0	4.3	28.2	39.6	27.9
78	2.3	17.6	36.5	43.6	4.9	33.0	44.0	18.1	2.5	23.2	46.1	28.2	5.2	40.7	47.8	6.3	3.6	27.3	42.1	27.0
79	1.7	14.4	35.1	48.7	4.2	30.0	44.0	21.4	2.2	21.4	47.5	28.8	4.7	36.2	49.0	10.1	3.0	23.6	41.8	31.6
1980	1.5	13.7	34.7	50.1	4.5	32.6	45.3	17.6	2.3	23.4	46.5	27.8	4.1	36.2	49.9	9.9	2.8	23.8	41.6	31.8
81	2.2	21.4	44.5	30.9	3.6	35.0	49.0	12.4	2.4	30.3	54.4	12.9	3.6	39.5	49.8	7.1	3.0	30.5	48.6	17.9

Source: Data for 1952-75 are from Office of Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics). Data for 1976-81 provided by Defense Manpower Data Center.

^aFYs 1976-80 reflect renormed data.

^bMay not sum to 100 percent due to rounding.

Table B-2
Distribution of Male Nonprior Service Accessions by
Armed Forces Qualification Test (AFQT) Category,
Fiscal Years 1977-81^a
(Percent)^b

Fiscal Year	AFQT Category				Total
	I	II	III	IV	
1977	3.3	24.8	42.2	29.7	100
1978	3.1	25.8	42.1	29.0	100
1979	2.6	22.6	41.6	33.2	100
1980	2.6	23.4	41.6	32.4	100
1981	2.8	30.1	47.4	19.6	100

SOURCE: Defense Manpower Data Center.

^aRestricted to males born between January 1, 1957 and December 31, 1962 (18 through 23 years).

^bMay not sum to 100 percent due to rounding.

Table B-3
Percentage of Male Nonprior Service Accessions (DoD and Army)
Who Scored 50 or Above on the Armed Forces Qualification Test (AFQT),
Fiscal Years 1961-81

Fiscal Year	Percent		Fiscal Year	Percent	
	DoD	Army		DoD	Army
1961	58.9	53.0	1972	56.3	53.3
1962	57.7	49.3	1973	56.1	53.1
1963	59.1	48.8	1974	58.0	52.5
1964	58.7	50.6	1975	60.7	57.5
1965	57.9	49.5	1976 ^a	61.7	48.8
1966	58.7	49.6	1977	47.6	32.1
1967	56.4	48.7	1978	49.2	33.9
1968	54.0	47.1	1979	44.1	28.4
1969	54.2	48.3	1980	44.6	27.8
1970	53.5	48.2	1981	54.4	39.8
1971	53.7	48.1			

SOURCES: Data for 1961-72 are from U.S. Army Recruiting Command (USAREC), Annual Report of the Qualitative Distribution of Military Manpower, RCS-DD-M(A)664 (Hampton, VA.: USAREC, 1961 through 1972). Data for 1973-81 provided by Defense Manpower Data Center.

^aFYs 1976-80 reflect renormed data.

Table B-4

Distribution of 1980 Youth Population and FY 1981 Nonprior Service Accessions by Service, Armed Forces Qualification Test (AFQT) Category, Sex, and Racial/Ethnic Group^a (Percent)^f

Population Group	AFQT Category	Racial/Ethnic Group											
		White ^b			Black ^c			Hispanic			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
FY 1981 Accessions I													
Army		2.8	2.6	2.7	0.1	0.1	0.1	0.3	0.2	0.3	2.0	1.7	2.0
Navy		3.9	3.6	3.9	0.4	0.1	0.3	1.1	0.5	1.0	3.4	3.1	3.4
Marine Corps		3.0	4.1	3.0	0.2	0.3	0.2	0.6	2.8	0.7	2.4	3.4	2.5
Air Force		4.0	3.3	3.9	0.5	0.5	0.5	0.5	d	0.5	3.5	2.9	3.4
Total DoD		3.5	3.2	3.4	0.2	0.2	0.2	0.6	0.4	0.6	2.8	2.4	2.8
1980 Youth		5.9	4.7	5.3	0.3	d	0.1	1.5	1.0	1.2	4.9	3.8	4.4
FY 1981 Accessions II													
Army		27.3	26.5	27.2	4.7	4.4	4.7	7.4	6.4	7.3	21.2	18.7	20.8
Navy		38.1	38.1	38.1	10.9	10.8	10.9	21.0	15.4	20.5	34.5	34.0	34.4
Marine Corps		34.3	51.3	35.3	9.9	30.3	11.1	12.4	26.8	13.1	29.2	46.8	30.2
Air Force		42.4	42.5	42.4	17.5	17.1	17.5	17.1	17.5	23.4	38.6	38.8	38.6
Total DoD		35.4	35.9	35.4	9.1	8.5	9.0	14.4	13.7	14.3	30.3	29.4	30.3
1980 Youth		40.6	36.8	38.8	7.2	6.3	6.8	15.7	10.3	13.1	34.6	30.9	32.7
FY 1981 Accessions III													
Army		48.1	48.2	48.6	32.1	43.3	34.4	36.6	48.3	38.0	42.5	47.3	43.2
Navy		47.1	51.3	47.6	47.1	64.9	49.2	51.6	88.7	53.2	47.3	53.5	47.9
Marine Corps		52.1	44.5	51.6	56.2	80.4	57.0	62.4	70.4	62.8	53.2	49.7	53.0
Air Force		46.5	50.6	47.1	66.2	74.5	67.3	63.7	68.6	64.2	49.5	54.1	50.2
Total DoD		47.3	49.9	47.6	44.9	52.6	46.1	49.1	59.4	50.1	47.0	50.7	47.4
1980 Youth		31.1	36.8	33.9	19.6	21.8	20.7	27.1	26.3	26.7	29.3	34.0	31.7
FY 1981 Accessions IV													
Army		23.8	21.8	23.5	63.0	52.2	60.8	55.8	44.1	54.5	34.3	32.4	34.0
Navy		10.8	7.1	10.4	41.6	24.2	38.6	26.3	14.5	25.3	14.8	9.5	14.2
Marine Corps		10.7	0.1	10.1	33.7	0.0	31.7	24.5	0.0	23.3	15.2	0.1	14.3
Air Force		7.1	3.6	6.6	15.8	7.9	14.7	12.4	5.9	11.7	8.4	4.2	7.8
Total DoD		13.9	11.0	13.5	45.8	38.7	44.7	36.0	26.4	35.1	19.9	17.5	19.6
1980 Youth		18.7	19.1	18.9	42.9	49.0	46.0	35.2	43.2	39.2	22.9	24.7	23.8
FY 1981 Accessions ^e V													
Army		0	0	0	0	0	0	0	0	0	0	0	0
Navy		0	0	0	0	0	0	0	0	0	0	0	0
Marine Corps		0	0	0	0	0	0	0	0	0	0	0	0
Air Force		0	0	0	0	0	0	0	0	0	0	0	0
Total DoD		0	0	0	0	0	0	0	0	0	0	0	0
1980 Youth		3.7	2.6	3.1	29.9	22.9	26.4	20.4	19.3	19.8	8.2	6.5	7.4

SOURCE: Data on FY 1981 accessions were provided by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics).

^aRestricted to persons in the sample born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^bWhite includes all racial/ethnic groups other than black or Hispanic.

^cBlack does not include persons of Hispanic origin.

^dLess than 0.05 percent.

^ePersons scoring in AFQT Category V are not eligible for military enlistment.

^fColumns may not sum to 100 percent due to rounding.

Table B-5

**FY 1981 Nonprior Service Accessions by
Educational Level, Service, Racial/Ethnic Group, and Sex^a**

Educational Level	White ^b			Black ^c			Hispanic			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Non-High School												
Graduate												
Army	9,569	371	9,940	1,437	49	1,486	368	7	375	11,374	427	11,801
Navy	6,091	17	6,108	367	3	370	196	2	198	6,654	22	6,676
Marine Corps	3,133	8	3,141	452	1	453	139	0	139	3,724	9	3,733
Air Force	1,390	175	1,565	74	4	78	27	1	28	1,491	180	1,671
Total DoD	20,183	571	20,754	2,330	57	2,387	730	10	740	23,243	638	23,881
GED High School												
Equivalency												
Army	1,906	213	2,119	301	33	334	124	5	129	2,331	251	2,582
Navy	6,630	456	7,086	495	27	522	252	16	268	7,377	499	7,876
Marine Corps	1,048	0	1,048	97	0	97	53	0	53	1,198	0	1,198
Air Force	3,311	622	3,933	309	44	353	88	17	105	3,708	683	4,391
Total DoD	12,895	1,291	14,186	1,202	104	1,306	517	38	555	14,614	1,433	16,047
High School Diploma												
Graduate												
Army	45,674	8,609	54,283	16,412	4,553	20,965	3,271	457	3,728	65,357	13,619	78,976
Navy	43,622	6,103	49,725	6,512	962	7,474	1,828	203	2,031	51,962	7,268	59,230
Marine Corps	19,792	1,476	21,268	4,569	316	4,885	1,208	71	1,279	25,569	1,863	27,432
Air Force	43,697	6,866	50,563	6,978	1,113	8,091	1,438	167	1,605	52,113	8,146	60,259
Total DoD	152,785	23,054	175,839	34,471	6,944	41,415	7,745	898	8,643	195,001	30,896	225,897
Total												
Army	57,149	9,193	66,342	18,150	4,635	22,785	3,763	469	4,232	79,082	14,297	93,359
Navy	56,343	6,576	62,919	7,374	992	8,366	2,276	221	2,497	65,993	7,789	73,782
Marine Corps	23,973	1,484	25,457	5,118	317	5,435	1,400	71	1,471	30,491	1,872	32,363
Air Force	48,398	7,663	56,061	7,361	1,161	8,522	1,553	185	1,738	57,312	9,009	66,321
Total DoD	185,863	24,916	210,779	38,003	7,105	45,108	8,992	946	9,938	232,858	32,967	265,825

SOURCE: Data on FY 1981 accessions were provided by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics).

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^aRestricted to persons born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^bWhite includes all racial/ethnic groups other than black or Hispanic.

^cBlack does not include persons of Hispanic origin.

Table B-6

**FY 1981 Nonprior Service Accessions by Service, Armed Forces Qualification Test (AFQT)
Category, Racial/Ethnic Group, and Sex^a**

Racial/Ethnic Group and Service	I			II			III			IV			V		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
White^b															
Army	1,572	240	1,812	15,597	2,432	18,029	26,368	4,520	30,888	13,609	2,001	15,610	57,146	9,193	66,339
Navy	2,215	236	2,451	21,413	2,503	23,916	26,456	3,371	29,827	6,050	464	6,514	56,134	6,574	62,708
Marine Corps	711	61	772	8,222	761	8,983	12,478	661	13,139	2,557	1	2,558	23,968	1,404	25,452
Air Force	1,910	250	2,160	20,128	3,221	23,349	22,091	3,835	25,926	3,378	276	3,654	47,507	7,582	55,089
Total DoD	6,408	787	7,195	65,360	8,917	74,277	87,393	12,387	99,780	25,594	2,742	28,336	184,755	24,833	209,588
Black^c															
Army	21	4	25	858	206	1,064	5,834	2,005	7,839	11,436	2,420	13,856	18,149	4,635	22,784
Navy	27	1	28	805	107	912	3,472	644	4,116	3,070	240	3,310	7,374	992	8,366
Marine Corps	10	1	11	508	96	604	2,877	220	3,097	1,722	0	1,722	5,117	317	5,434
Air Force	36	6	42	1,285	198	1,483	4,857	864	5,721	1,161	91	1,252	7,339	1,159	8,498
Total DoD	94	12	106	3,456	607	4,063	17,040	3,733	20,773	17,389	2,751	20,140	37,979	7,103	45,082
Hispanic															
Army	11	1	12	278	30	308	1,376	231	1,607	2,098	207	2,305	3,763	469	4,232
Navy	24	1	25	479	34	513	1,174	154	1,328	599	32	631	2,276	221	2,497
Marine Corps	9	2	11	174	19	193	874	50	924	343	0	343	1,400	71	1,471
Air Force	8	0	8	362	47	409	984	127	1,111	191	11	202	1,545	185	1,730
Total DoD	52	4	56	1,293	130	1,423	4,408	562	4,970	3,231	250	3,481	8,984	946	9,930
Totals															
Army	1,604	245	1,849	16,733	2,668	19,401	33,578	6,756	40,334	27,143	4,628	31,771	79,058	14,297	93,355
Navy	2,266	238	2,504	22,697	2,644	25,341	31,102	4,169	35,271	9,719	736	10,455	65,784	7,787	73,571
Marine Corps	730	64	794	8,904	876	9,780	16,229	931	17,160	4,622	1	4,623	30,485	1,872	32,357
Air Force	1,954	256	2,210	21,775	3,466	25,241	27,932	4,826	32,758	4,730	378	5,108	56,391	8,926	65,317
Total DoD	6,554	803	7,357	70,109	9,654	79,763	108,841	16,682	125,523	46,214	5,743	51,957	231,718	32,882	264,600

SOURCE: Data on FY 1981 accessions were provided by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics).

^aRestricted to persons born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^bWhite includes all racial/ethnic groups other than black or Hispanic.

^cBlack does not include persons of Hispanic origin.

Appendix C

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Table C-1
**Armed Forces Qualification Test (AFQT) Score of the
 1980 Youth Population by Racial/Ethnic Group, Age and Sex^a**

Age	Racial/Ethnic Group									Total ^d		
	White ^b			Black ^c			Hispanic					
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
18 and 19 Years												
Sample Size	823	820	1643	421	422	843	237	262	499	1481	1504	2985
Population Estimate ^a	3,381.4	3,261.4	6,642.8	593.7	586.5	1,180.2	279.5	248.8	528.3	4,254.6	4,096.7	8,351.2
Median	52.	51.	52.	15.	19.	17.	20.	22.	21.	43.	44.	44.
Mean	51.04	51.78	51.40	21.91	24.01	22.96	28.94	29.04	28.99	45.52	46.42	45.96
Standard Deviation	26.78	25.04	25.94	19.59	18.41	19.04	24.01	21.71	22.95	27.95	26.25	27.14
20 and 21 Years												
Sample Size	938	968	1906	369	401	770	234	221	455	1541	1590	3131
Population Estimate ^a	3,495.0	3,351.5	6,846.5	586.1	579.6	1,165.6	258.0	261.7	519.7	4,339.2	4,192.7	8,531.9
Median	59.	58.	60.	16.	16.	16.	30.	20.	23.	52.	50.	50.
Mean	55.91	55.71	55.81	23.96	23.20	23.58	34.49	25.80	30.11	50.32	49.35	49.84
Standard Deviation	26.98	25.59	26.31	21.70	19.64	20.71	24.74	20.90	23.29	28.64	27.67	28.17
22 and 23 Years												
Sample Size	1004	993	1997	357	333	690	187	213	400	1548	1539	3087
Population Estimate ^a	3,543.0	3,409.1	6,952.1	569.8	572.5	1,132.2	247.9	265.2	513.1	4,350.7	4,246.7	8,597.4
Median	67.	61.	64.	16.	19.	18.	26.	25.	25.	61.	56.	58.
Mean	62.21	58.25	60.26	25.62	26.88	26.26	36.94	32.37	34.58	56.06	52.40	54.25
Standard Deviation	25.88	25.32	25.68	23.65	21.22	22.46	29.29	25.82	27.64	28.93	27.51	28.30
Total^d												
Sample Size	2754	2779	5533	1143	1155	2298	653	689	1342	4550	4623	9173
Population Estimate ^a	10,380.5	10,014.1	20,394.6	1,733.0	1,737.2	3,470.3	777.6	766.6	1,544.2	12,891.2	12,517.9	25,409.0
Median	60.	58.	59.	16.	18.	17.	24.	22.	23.	52.	50.	51.
Mean	56.58	55.33	55.97	23.87	24.70	24.29	33.54	29.39	31.48	50.80	49.49	50.15
Standard Deviation	26.85	25.42	26.17	21.73	19.84	20.81	26.22	23.02	24.77	28.77	27.23	28.03

^aRestricted to persons in the sample born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^bWhite includes all racial/ethnic groups other than black or Hispanic.

^cBlack does not include persons of Hispanic origin.

^dTotals may not sum to 100 percent due to rounding.

^eIn thousands.

Table C-2

**Armed Forces Qualification Test (AFQT) Score of the 1980 Youth Population by
Sex, Racial/Ethnic Group, and Educational Level^a**

Educational Level	Racial/Ethnic Group									Total ^d		
	White ^b			Black ^c			Hispanic					
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Non-High School Graduates												
Sample Size	665	535	1200	427	296	723	288	278	566	1380	1109	2489
Population Estimate ^e	2,195.7	1,718.8	3,914.5	659.9	455.5	1,112.4	334.8	304.4	639.2	3,187.4	2,478.6	5,666.0
Median	25.	25.	25.	8.	8.	8.	12.	11.	12.	19.	19.	19.
Mean	32.98	33.00	32.99	13.69	11.59	12.83	16.03	16.27	16.15	27.22	27.01	27.13
Standard Deviation	23.50	23.05	23.30	14.66	11.15	13.37	14.29	16.03	15.14	22.80	22.48	22.66
GED High School Equivalency												
Sample Size	146	105	251	45*	34*	79	26*	22*	48*	217	161	378
Population Estimate ^e	367.1	336.1	703.1	65.1	60.0	125.1	25.3	27.0	52.3	457.5	423.1	880.6
Median	53.	50.	51.	18.	24.	22.	30.	23.	26.	48.	43.	45.
Mean	51.02	50.55	50.80	24.51	25.46	24.96	33.64	27.62	30.53	46.29	45.53	45.92
Standard Deviation	22.14	19.95	21.12	17.53	16.05	16.85	18.52	14.59	16.88	23.46	21.54	22.56
High School Graduates												
Sample Size	1941	2136	4077	664	815	1479	336	388	724	2941	3339	6280
Population Estimate ^e	7,806.4	7,942.9	15,749.3	1,001.4	1,207.3	2,208.7	414.2	433.6	847.7	9,221.9	9,583.8	18,805.8
Median	66.	64.	65.	22.	23.	22.	48.	31.	39.	63.	58.	60.
Mean	63.44	60.42	61.92	20.49	29.63	30.02	47.53	38.77	43.05	59.15	55.56	57.32
Standard Deviation	33.95	23.38	23.72	23.27	25.34	21.72	25.52	23.10	24.81	26.16	25.43	25.85

^aRestricted to persons in the sample born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^bWhite includes all racial/ethnic groups other than black or Hispanic.

^cBlack does not include persons of Hispanic origin.

^dTotals may not sum to 100 percent due to rounding.

^eIn thousands.

*Subgroup size is too small for reliable statistical comparisons (less than 50 cases).

Table C-3

**Armed Forces Qualification Test (AFQT) Score of the
1980 Youth Population Racial/Ethnic Group and Mother's Education**

Mother's Education	Racial/Ethnic Group									Total ^d		
	White ^b			Black ^c			Hispanic					
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Eighth Grade or Less												
Sample Size	288	317	605	182	204	386	348	356	704	818	877	1695
Population Estimate ^a	816.5	897.8	1,714.2	266.4	290.9	557.3	382.7	384.8	767.5	1,465.6	1,573.5	3,039.1
Median	30	28	29	11	13	12	17	16	16	20	19	20
Mean	36.16	34.48	35.28	18.57	16.50	16.53	25.34	23.10	24.21	29.77	28.37	29.05
Standard Deviation	25.61	24.77	25.19	15.72	13.96	14.82	22.47	19.37	21.01	24.53	23.06	23.79
Grades 9 - 11												
Sample Size	488	548	1036	389	402	791	95	120	215	972	1070	2042
Population Estimate ^a	1,613.5	1,762.3	3,375.8	575.1	586.5	1,161.6	116.9	143.4	260.4	2,305.6	2,492.2	4,797.8
Median	43	41	42	13	18	15	21	25	24	31	33	32
Mean	45.51	44.33	44.89	19.07	21.41	20.25	31.99	29.90	30.84	38.23	38.10	38.16
Standard Deviation	26.85	23.67	25.25	17.86	17.12	17.53	23.86	20.45	22.07	27.27	24.21	25.73
High School Graduate												
Sample Size	1337	1268	2605	370	366	736	127	131	258	1834	1765	3599
Population Estimate ^a	5,303.3	4,800.1	10,103.4	556.7	562.3	1,118.6	163.3	146.7	310.0	6,023.3	5,508.8	11,532.1
Median	58	58	58	18	21	19	44	34	38	56	56	56
Mean	57.19	57.04	57.12	25.93	28.71	27.33	45.35	39.89	42.77	53.98	53.70	53.84
Standard Deviation	24.97	23.54	24.30	22.34	21.47	21.95	25.68	24.80	25.41	26.40	24.99	25.74
Some College												
Sample Size	292	326	618	80	81	161	*27	*31	58	399	438	837
Population Estimate ^a	1,210.0	1,285.1	2,495.1	141.7	129.5	271.2	40.0	36.5	76.4	1,391.7	1,451.0	2,842.7
Median	74	66	70	40	27	32	54	53	53	71	64	68
Mean	68.50	64.34	66.36	40.07	34.57	37.44	53.17	50.91	52.09	65.17	61.34	63.22
Standard Deviation	24.30	21.89	23.09	22.33	22.13	22.40	22.93	22.11	22.57	25.64	23.40	24.58
College Graduate or More												
Sample Size	276	255	531	58	50	108	*25	*16	*41	350	321	680
Population Estimate ^a	1,218.6	1,082.4	2,301.0	95.3	87.2	182.5	39.1	16.6	55.7	1,353.0	1,186.3	2,539.2
Median	78	81	79	49	34	44	60	60	60	76	78	78
Mean	73.04	74.73	73.83	48.32	41.15	43.85	60.75	64.87	61.98	70.80	72.12	71.42
Standard Deviation	20.91	19.04	20.07	28.82	19.45	24.80	27.77	17.76	25.27	22.88	20.99	22.02

^aRestricted to persons in the sample born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^bWhite includes all racial/ethnic groups other than black or Hispanic.

^cBlack does not include persons of Hispanic origin.

^dTotals may not sum to 100 percent due to rounding.

^eIn thousands.

*Subgroup size is too small for reliable statistical comparisons (less than 50 cases).

Table C-4

U.S. Bureau of Census Classification of States by Region and Division

Region	Division and States	
NORTHEAST	<u>New England</u>	<u>Middle Atlantic</u>
	Maine New Hampshire Vermont Massachusetts Rhode Island Connecticut	New York New Jersey Pennsylvania
NORTH CENTRAL	<u>East North Central</u>	<u>West North Central</u>
	Ohio Indiana Illinois Michigan Wisconsin	Minnesota Iowa Missouri North Dakota Nebraska Kansas
SOUTH	<u>South Atlantic</u>	<u>East South Central</u>
	Delaware Maryland District of Columbia Virginia West Virginia North Carolina South Carolina Georgia Florida	Kentucky Tennessee Alabama Mississippi
WEST	<u>Mountain</u>	<u>West South Central</u>
	Montana Idaho Wyoming Colorado New Mexico Arizona Utah Nevada	Arkansas Louisiana Oklahoma Texas
OTHER	<u>Pacific</u>	
	Montana Idaho Wyoming Colorado New Mexico Arizona Utah Nevada	Washington Oregon California Alaska Hawaii
OTHER	<u>Outlying Areas; Bordering Nations; and Countries, Dependencies, and Areas of Special Sovereignty</u>	
	Mexico American Samoa Canal Zone Caroline Islands Cook Islands Gilbert and Ellice Islands	Mariana Islands Marshall Islands Puerto Rico Trust Territories of the Pacific Islands U.S. Miscellaneous Pacific Islands Virgin Islands Wake Island

Table C-5

Armed Forces Qualification Test (AFQT) Score by Racial/Ethnic Group, Geographic Region, and Sex^a

Geographic Region	Racial/Ethnic Group											
	White ^b			Black ^c			Hispanic			Total ^d		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
New England												
Sample Size	137	158	295	*27	*22	*49	*20	*32	52	184	212	396
Population Estimate ^e	589.4	557.9	1,157.3	38.9	40.7	80.6	22.3	31.5	53.8	661.6	630.1	1,291.7
Median	74	80	80	18	23	19	14	18	18	72	57	66
Mean	58.74	58.08	58.40	29.22	35.95	32.16	22.88	25.16	26.29	64.81	55.59	60.31
Standard Deviation	23.97	26.22	25.54	28.94	27.39	26.12	20.02	18.22	17.89	24.17	25.89	25.02
Middle Atlantic												
Sample Size	449	424	873	179	176	355	105	92	197	733	682	1,415
Population Estimate ^e	1,048.7	1,532.2	2,580.9	280.7	273.5	554.2	129.8	103.6	233.1	2,067.0	1,912.3	3,979.3
Median	82	81	81	18	28	19	21	14	19	84	55	55
Mean	57.63	58.27	58.40	25.02	28.96	25.98	30.75	22.72	27.18	51.48	52.63	52.04
Standard Deviation	27.13	23.94	25.64	26.75	19.56	20.17	25.74	21.20	23.83	26.26	23.22	24.84
East North Central												
Sample Size	586	587	1,173	155	186	321	*41	*42	83	782	795	1,577
Population Estimate ^e	2,882.0	2,486.5	5,368.5	268.2	282.0	521.1	51.4	51.8	103.1	2,992.6	2,809.1	5,792.8
Median	81	53	58	25	18	19	23	24	24	59	48	54
Mean	57.31	52.78	55.00	31.42	23.86	27.62	36.72	32.59	31.66	64.61	56.57	62.66
Standard Deviation	26.50	25.84	26.18	25.52	19.38	22.64	27.88	25.35	26.64	26.44	25.29	25.89
West North Central												
Sample Size	185	180	348	*26	*41	67	*14	*11	*25	229	212	441
Population Estimate ^e	866.5	475.5	1,322.0	31.7	57.9	89.7	12.8	8.8	21.6	701.0	542.2	1,243.2
Median	88	59	84	15	15	15	34	21	28	85	58	60
Mean	62.85	58.78	61.02	24.36	18.82	20.78	40.81	32.47	37.41	60.52	54.07	57.70
Standard Deviation	24.81	24.40	24.52	22.87	15.00	18.00	24.51	24.78	24.81	24.52	23.58	24.11
South Atlantic												
Sample Size	486	904	990	384	383	767	55	54	109	925	941	1,866
Population Estimate ^e	1,735.5	1,819.4	3,554.9	575.7	552.0	1,127.7	76.8	65.3	142.1	2,388.0	2,436.7	4,824.7
Median	50	51	50	13	17	15	48	30	40	41	42	41
Mean	49.84	50.93	50.40	26.28	24.17	22.18	49.04	38.24	44.07	42.88	44.53	43.82
Standard Deviation	27.34	28.01	28.67	19.90	19.56	19.73	28.65	24.09	26.05	25.97	24.94	25.21
East South Central												
Sample Size	143	160	303	83	105	188	*2	*3	*5	228	268	496
Population Estimate ^e	488.5	569.5	1,029.0	134.2	148.4	283.6	2.7	2.5	5.2	605.4	712.4	1,317.8
Median	45	50	48	14	20	17	*	31	49	34	42	39
Mean	45.86	48.09	47.40	19.34	25.33	22.40	62.35	45.78	54.39	40.96	43.79	42.87
Standard Deviation	27.22	23.72	25.37	18.94	19.50	18.56	1.89	26.14	14.03	25.23	22.96	24.03
West South Central												
Sample Size	214	222	438	159	162	321	115	136	251	479	519	998
Population Estimate ^e	705.2	871.1	1,376.3	228.1	244.5	472.6	137.5	151.5	289.1	1,070.8	1,067.2	2,138.0
Median	67	61	63	15	15	15	22	17	19	51	44	48
Mean	62.22	57.43	59.88	21.89	21.98	21.94	33.80	27.07	30.27	49.98	44.99	47.49
Standard Deviation	25.13	25.60	25.38	18.68	18.56	18.82	26.48	21.56	24.00	24.00	23.58	23.84
Mountain												
Sample Size	158	181	319	*18	*9	*25	81	82	163	255	262	507
Population Estimate ^e	571.0	540.1	1,111.1	22.4	12.2	34.6	89.0	89.9	178.9	682.4	642.2	1,324.6
Median	56	58	58	17	22	18	29	28	29	51	57	56
Mean	52.67	58.42	55.46	23.97	23.62	23.85	36.32	33.50	34.90	48.00	54.27	51.88
Standard Deviation	25.07	23.77	24.45	21.18	18.08	18.05	23.47	20.68	22.11	24.75	23.17	24.00
Pacific												
Sample Size	331	318	649	85	78	155	211	228	439	627	616	1,243
Population Estimate ^e	1,141.5	1,081.4	2,222.9	108.4	98.5	205.9	242.7	258.9	483.7	1,480.7	1,431.8	2,912.5
Median	58	58	58	15	20	19	21	21	21	50	51	51
Mean	56.64	56.14	56.40	28.74	29.49	29.10	29.20	30.03	29.62	56.18	49.71	49.95
Standard Deviation	26.15	24.92	25.56	25.87	22.50	24.30	23.63	23.83	23.75	25.74	24.57	25.17
Other												
Sample Size	61	85	146	*38	*31	69	*9	*9	*18	108	125	233
Population Estimate ^e	174.2	288.5	460.7	54.7	45.5	100.2	12.8	10.8	23.7	241.7	342.9	584.5
Median	58	68	68	18	14	16	29	22	25	48	62	68
Mean	56.47	62.40	60.16	25.72	22.98	24.48	45.95	28.87	38.09	48.98	56.10	53.15
Standard Deviation	27.63	24.89	26.04	19.70	20.32	19.98	34.80	25.90	30.68	26.05	24.34	25.32

^aRestricted to persons in the sample born between January 1, 1957 and December 31, 1982 (18 through 23 years at time of testing, July-October 1980).

^bWhite includes all racial/ethnic groups other than black or Hispanic.

^cBlack does not include persons of Hispanic origin.

^dTotals may not sum to 100 percent due to rounding.

^eIn thousands.

^fSubgroup size is too small for reliable statistical comparisons (less than 50 cases).

Table C-6

Estimated Reading Grade Level^a of 1980 Youth Population by Racial/Ethnic Group, Sex, and Age^b

Age	Racial/Ethnic Group											
	White ^c			Black ^d			Hispanic			Total ^e		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
18 and 19 Years												
Sample Size	823	820	1643	421	422	843	237	262	499	1481	1504	2985
Population Estimate ^f	3,381.4	3,261.4	6,642.8	593.7	586.5	1,180.2	278.5	248.8	528.3	4,254.6	4,096.7	8,351.2
Median	9.7	9.4	9.5	8.7	8.8	8.8	7.4	7.3	7.4	9.3	8.9	9.0
Mean	9.6	9.5	9.5	8.8	7.0	6.9	7.6	7.5	7.6	9.1	9.0	9.1
Standard Deviation	2.28	2.05	2.17	2.13	1.88	2.01	2.41	2.07	2.26	2.50	2.23	2.37
20 and 21 Years												
Sample Size	938	968	1906	389	401	770	234	221	455	1541	1590	3131
Population Estimate ^f	3,495.0	3,351.5	6,846.5	586.1	579.6	1,165.6	258.0	261.7	519.7	4,339.2	4,192.7	8,531.9
Median	10.4	10.1	10.3	8.8	8.8	8.8	8.1	7.0	7.4	9.9	9.4	9.6
Mean	10.0	9.8	9.9	7.0	6.9	7.0	8.1	7.1	7.6	9.5	9.3	9.4
Standard Deviation	2.26	2.09	2.18	2.24	2.05	2.15	2.40	2.02	2.27	2.51	2.37	2.45
22 and 23 Years												
Sample Size	1004	993	1997	357	333	690	187	213	400	1548	1539	3087
Population Estimate ^f	3,543.0	3,409.1	6,952.1	559.8	572.5	1,132.2	247.9	265.2	513.1	4,350.7	4,246.7	8,597.4
Median	11.1	10.3	10.7	6.9	7.1	7.0	7.7	7.5	7.6	10.6	9.7	10.2
Mean	10.6	10.0	10.3	7.2	7.3	7.3	8.3	7.7	8.0	10.0	9.5	9.8
Standard Deviation	2.04	2.07	2.07	2.42	2.01	2.22	2.71	2.48	2.61	2.45	2.33	2.40
Total^d												
Sample Size	2754	2779	5533	1143	1155	2298	653	689	1342	4550	4623	9173
Population Estimate ^f	10,380.5	10,014.1	20,394.6	1,733.0	1,737.2	3,470.3	777.6	766.6	1,544.2	12,891.2	12,517.9	25,409.0
Median	10.5	9.9	10.3	6.8	6.8	6.8	7.7	7.3	7.5	9.9	9.4	9.6
Mean	10.1	9.8	9.9	7.0	7.1	7.1	8.0	7.5	7.7	9.6	9.3	9.4
Standard Deviation	2.21	2.07	2.15	2.27	1.99	2.13	2.51	2.19	2.37	2.50	2.31	2.41

^aReading Grade Levels were estimated for the profile study sample using conversion tables for ASVAB G scores to ABLE reading test scores. The correlation between the scales in the test equating sample was .85.

^bRestricted to persons in the sample born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^cWhite includes all racial/ethnic groups other than black or Hispanic.

^dBlack does not include persons of Hispanic origin.

^eTotals may not sum to 100 percent due to rounding.

^fIn thousands.

Table C-7

Estimated Reading Grade Level^a of 1980 Youth Population by Education, Sex, and Age^b

Age	Amount of Education																	
	Less Than 8th Grade			Grades 6 - 8			Grades 9 - 11			High School Graduates			Some College			College Graduates or More		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
18 and 19 Years																		
Sample Size	4	1	5	81	58	139	1087	984	2071	292	439	731	13	22	35	0	0	0
Population Estimate ^c	3.5	1.0	4.5	158.5	114.4	273.9	2,983.8	2,579.0	5,562.7	1,068.8	1,346.0	2,414.9	31.8	58.3	90.0	0	0	0
Median	*	*	*	5.3	5.7	5.5	8.8	8.6	8.7	10.7	9.9	10.3	*	*	*	*	*	*
Mean	*	*	*	5.6	6.0	5.8	8.9	8.7	8.8	10.3	9.7	10.0	*	*	*	*	*	*
Standard Deviation	*	*	*	1.98	1.70	1.88	2.42	2.18	2.31	2.95	2.03	2.06	*	*	*	*	*	*
20 and 21 Years																		
Sample Size	10	7	17	50	54	113	425	316	741	743	754	1507	301	444	745	1	4	5
Population Estimate ^c	14.5	7.4	21.8	110.1	110.3	220.4	935.8	687.4	1,633.0	2,122.3	1,829.5	3,951.8	1,138.5	1,526.1	2,664.6	1.3	20.9	22.2
Median	*	*	*	5.1	5.9	5.5	7.7	7.1	7.4	8.6	8.9	9.2	11.9	11.2	11.6	*	*	*
Mean	*	*	*	6.4	6.4	5.9	7.8	7.2	7.5	9.5	9.0	9.2	11.4	10.8	11.0	*	*	*
Standard Deviation	*	*	*	1.38	2.15	1.87	2.36	1.99	2.23	2.17	2.05	2.13	1.58	1.75	1.71	*	*	*
22 and 23 Years																		
Sample Size	7	17	24	58	61	100	288	206	474	685	671	1367	430	475	905	89	117	206
Population Estimate ^c	15.5	32.7	48.2	142.8	117.0	259.8	824.4	500.2	1,124.6	1,711.6	1,829.0	3,540.6	1,551.6	1,418.0	2,969.6	304.8	659.1	658.1
Median	*	*	*	7.3	6.4	6.0	7.6	7.3	7.5	10.0	9.0	9.5	11.9	10.9	11.5	12.3	11.9	12.1
Mean	*	*	*	7.5	6.4	6.2	7.7	7.5	7.6	9.6	9.1	9.4	11.3	10.6	11.0	11.9	11.7	11.8
Standard Deviation	*	*	*	2.19	1.67	2.00	2.33	2.26	2.30	2.17	1.95	2.07	1.70	1.79	1.78	1.04	1.22	1.14

^aReading Grade Levels were estimated for the profile study sample using conversion tables for ASVAB G scores to ABLE reading test scores. The correlation between the scales in the test equating sample was .85.^bRestricted to persons in the sample born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).^cIn thousands^dSubgroup size is too small for reliable statistical comparisons (less than 50 cases).

Table C-8
Estimated Reading Grade Level^a of 1980 Youth Population
Educational Attainment and Sex^b

Sex	Educational Attainment					
	Less Than 6th Grade	Grades 6 - 8	Grades 9 - 11	High School Graduate	Some College	College Graduate or More
MALES						
Sample Size	18	190	1775	1728	743	90
Population Estimated ^d	25.1	390.4	4,537.7	4,887.0	2,722.0	306.0
Median	*	5.4	7.8	9.5	11.7	12.3
Mean	*	6.1	8.5	9.7	11.3	11.9
Standard Deviation	*	2.02	2.45	2.16	1.65	1.04
FEMALES						
Sample Size	23	157	1506	1873	941	120
Population Estimated ^d	37.5	333.6	3,776.5	5,004.4	2,992.4	368.9
Median	*	5.4	7.5	8.9	10.4	11.6
Mean	*	6.0	8.3	9.2	10.7	11.6
Standard Deviation	*	1.89	2.26	2.03	1.78	1.22
TOTAL^c						
Sample Size	41	347	3281	3601	1684	210
Population Estimated ^d	62.6	724.0	8,314.2	9,891.3	5,714.4	675.0
Median	*	5.4	7.6	9.2	11.1	11.9
Mean	*	6.0	8.4	9.5	11.0	11.7
Standard Deviation	*	1.96	2.36	2.11	1.75	1.15

^aReading Grade Levels were estimated for the profile study sample using conversion tables for ASVAB G scores to ABLE reading test scores.

The correlation between the scales in the test equating sample was .85.

^bRestricted to persons in the sample born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^cTotals may not sum to 100 percent due to rounding.

^dIn thousands.

*Subgroup size is too small for reliable statistical comparisons (less than 50 cases).

Table C-9
Estimated Reading Grade Level^a of 1980 Youth Population by
Racial/Ethnic Group and Sex^b

Sex	Racial/Ethnic Group			
	White ^c	Black ^d	Hispanic	Total ^e
MALES				
Sample Size	2754	1143	653	4550
Population Estimate ^f	10,380.5	1,733.0	777.6	12,891.2
Median	10.5	6.8	7.7	9.9
Mean	10.1	7.0	8.0	9.6
Standard Deviation	2.21	2.27	2.51	2.50
FEMALES				
Sample Size	2779	1155	689	4623
Population Estimate ^f	10,014.1	1,737.2	766.6	12,517.9
Median	9.9	6.8	7.3	9.4
Mean	9.6	7.1	7.5	9.3
Standard Deviation	2.07	1.99	2.19	2.31
TOTAL^e				
Sample Size	5533	2298	1342	9173
Population Estimate ^f	20,394.6	3,470.3	1,544.2	25,409.0
Median	10.3	6.8	7.5	9.6
Mean	9.9	7.0	7.7	9.4
Standard Deviation	2.15	2.13	2.37	2.41

^aReading Grade Levels were estimated for the profile study sample using conversion tables for ASVAB G scores to ABLE reading test scores. The correlation between the scales in the test equating sample was .85.

^bRestricted to persons in the sample born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^cWhite includes all racial/ethnic groups other than black or Hispanic.

^dBlack does not include persons of Hispanic origin.

^eTotals may not sum to 100 percent due to rounding.

^fIn thousands.

Table C-10
**Mechanical Aptitude Composite Scores for 1980 Youth Population by
 Racial/Ethnic Group, Sex, and Educational Level^a**

Educational Level	Racial/Ethnic Group ^b											
	White ^c			Black ^d			Hispanic			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Non-High School Graduate												
Median	33.	14.	22.	7.	4.	5.	10.	5.	7.	22.	11.	16.
Mean	40.72	19.03	31.33	12.81	7.17	10.50	18.13	8.86	13.76	32.54	15.52	25.17
Standard Deviation	22.94	12.70	21.99	11.65	5.64	10.04	17.95	8.28	14.97	23.92	12.34	21.48
GED High School Equivalency												
Median	56.	27.	40.	13.	8.	11.	33.	11.	20.	56.	28.	35.
Mean	59.19	32.04	46.21	19.29*	12.47*	16.02	38.47*	14.01*	25.84	52.36	28.11	40.71
Standard Deviation	20.15	14.31	22.22	13.22	11.63	12.94	20.44	8.01	19.61	24.03	15.67	23.77
High School Graduate and Above												
Median	64.	25.	40.	22.	9.	12.	38.	13.	22.	58.	23.	34.
Mean	62.06	30.94	46.36	25.00	13.53	18.72	43.35	19.18	31.00	57.19	28.21	42.41
Standard Deviation	22.80	15.34	24.87	19.42	8.81	15.68	25.31	13.48	23.49	25.52	15.81	25.62
Total												
Median	56.	43.	37.	16.	8.	9.	26.	10.	14.	50.	21.	30.
Mean	56.89	28.77	43.59	20.28	11.90	16.04	32.09	14.71	23.75	51.09	25.80	38.64
Standard Deviation	22.70	14.84	24.96	16.74	8.24	14.55	22.18	11.52	21.96	27.19	16.00	25.71

^aSubgroup size is too small for reliable statistical comparisons (less than 50 cases).

^bPercentile scores on the Air Force version of the Mechanical Aptitude Composite. This composite consists of the following ASVAB subtests: Mechanical Comprehension, Automotive-Shop Information, and General Science.

^cSample sizes and population estimates for racial/ethnic groups and subcategories appear in Table C-2.

^dWhite includes all racial/ethnic groups other than black or Hispanic.

^eBlack does not include persons of Hispanic origin.

Table C-11

**Administrative Aptitude Composite Scores for 1980 Youth Population by
Racial/Ethnic Group, Sex, and Educational Level^a**

Educational Level	Racial/Ethnic Group ^b											
	White ^c			Black ^d			Hispanic			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
<u>Non-High School Graduate</u>												
Median	18.	24.	20.	5.	6.	5.	8.	10.	9.	13.	18.	15.
Mean	26.40	33.00	29.26	10.93	12.16	11.43	13.70	16.63	15.08	21.84	27.02	24.09
Standard Deviation	20.36	24.02	22.26	12.33	13.71	12.93	12.93	16.98	15.05	19.49	23.39	21.42
<u>GED High School Equivalency</u>												
Median	42.	47.	45.	13.	21.	17.	29.	27.	29.	36.	40.	38.
Mean	43.41	49.51	46.33	19.72*	23.49*	21.53	35.66*	33.11*	34.34	39.61	44.77	42.09
Standard Deviation	21.62	23.13	22.56	14.97	15.43	15.31	20.05	17.39	18.77	22.31	23.85	23.21
<u>High School Graduate and Above</u>												
Median	53.	63.	59.	18.	23.	21.	39.	39.	39.	49.	58.	54.
Mean	54.78	61.92	58.38	27.31	32.36	30.07	43.28	43.69	43.49	51.27	57.37	54.38
Standard Deviation	24.29	23.06	23.95	22.04	22.66	22.53	24.78	25.20	24.99	25.60	25.28	25.62
<u>Total</u>												
Median	44.	55.	51.	13.	19.	14.	25.	27.	22.	40.	50.	45.
Mean	47.49	56.08	52.60	20.98	29.02	23.90	29.99	32.58	31.54	43.78	51.19	47.42
Standard Deviation	23.29	23.25	26.17	18.78	20.58	21.55	21.01	20.25	25.36	27.21	27.58	27.64

*Subgroup size is too small for reliable statistical comparisons (less than 50 cases).

^aThe Administrative Aptitude Composite consists of the following ASVAB subtests: Coding Speed, Numerical Operations, Paragraph Comprehension, and Word Knowledge. Scores are based on percentile scale distribution.

^bSample sizes and population estimates for racial/ethnic groups and subcategories appear in Table C-2.

^cWhite includes all racial/ethnic groups other than black or Hispanic.

^dBlack does not include persons of Hispanic origin.

Table C-12

**General Aptitude Composite Scores for 1980 Youth Population by
Racial/Ethnic Group, Sex, and Educational Level^a**

Educational Level	Racial/Ethnic Group ^b											
	White ^c			Black ^d			Hispanic			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
<u>Non-High School Graduate</u>												
Median	25.	22.	24.	7.	5.	6.	10.	8.	9.	18.	15.	17.
Mean	33.86	30.78	32.53	13.12	10.49	12.04	16.13	15.85	16.00	27.68	25.09	26.56
Standard Deviation	24.08	22.44	23.44	13.99	10.97	12.90	15.55	16.57	16.04	23.42	21.81	22.78
<u>GED High School Equivalency</u>												
Median	51.	48.	49.	16.	22.	20.	30.	19.	23.	47.	45.	46.
Mean	52.41	50.70	51.59	26.39*	27.39*	26.87	33.75*	25.33*	29.40	47.67	45.77	46.76
Standard Deviation	22.47	18.73	20.78	19.74	18.64	19.23	17.60	15.29	16.96	23.90	20.90	22.52
<u>High School Graduate and Above</u>												
Median	67.	57.	62.	21.	20.	20.	47.	28.	36.	62.	52.	56.
Mean	64.46	58.19	61.30	30.51	27.64	29.05	47.69	36.59	42.01	60.02	53.38	56.64
Standard Deviation	23.86	23.63	23.95	23.73	19.66	21.64	25.99	22.39	24.84	26.30	25.46	26.09
<u>Total</u>												
Median	56.	50.	55.	16.	16.	14.	30.	20.	20.	52.	47.	50.
Mean	56.62	52.82	55.67	23.95	23.46	23.63	33.28	27.97	30.93	51.80	47.76	49.81
Standard Deviation	23.84	23.25	26.23	20.52	17.85	20.77	21.69	20.06	24.86	29.02	27.03	28.13

*Subgroup size is too small for reliable statistical comparisons (less than 50 cases).

^aThe General Aptitude Composite consists of the following ASVAB subtests: Arithmetic Reasoning, Paragraph Comprehension, and Word Knowledge. Scores are based on percentile scale distribution.

^bSample sizes and population estimates for racial/ethnic groups and subcategories appear in Table C-2.

^cWhite includes all racial/ethnic groups other than black or Hispanic.

^dBlack does not include persons of Hispanic origin.

Table C-13

**Electronics Aptitude Composite Scores for 1980 Youth Population by
Racial/Ethnic Group, Sex, and Educational Level^a**

Educational Level	Racial/Ethnic Group ^b											
	White ^c			Black ^d			Hispanic			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Non-High School Graduate												
Median	27.	16.	22.	7.	4.	6.	8.	5.	7.	19.	12.	15.
Mean	35.35	25.28	30.99	13.59	8.66	11.57	15.69	12.36	14.11	28.75	20.53	25.19
Standard Deviation	23.09	19.94	22.35	13.33	8.75	11.92	15.78	13.93	15.03	22.91	19.03	21.70
GED High School Equivalency												
Median	50.	41.	44.	17.	13.	14.	31.	14.	20.	44.	35.	41.
Mean	51.86	42.80	47.53	24.17*	21.30*	22.79	35.09*	19.07*	26.82	46.99	38.23	42.78
Standard Deviation	19.79	18.41	19.67	16.81	16.44	16.70	20.83	13.24	19.09	21.89	20.00	21.45
High School Graduate and Above												
Median	68.	49.	59.	20.	14.	17.	45.	19.	28.	65.	44.	53.
Mean	65.49	50.68	58.02	30.36	23.18	26.43	47.97	29.59	38.57	60.88	46.26	53.43
Standard Deviation	23.21	23.73	24.61	23.79	18.08	21.17	27.14	22.75	26.63	26.03	25.04	26.56
Total (N = 9173)												
Median	57.	43.	51.	15.	11.	12.	28.	13.	16.	53.	36.	45.
Mean	57.67	45.67	52.68	23.94	19.47	21.63	33.28	22.39	28.15	52.66	41.11	46.97
Standard Deviation	23.01	22.88	26.24	20.29	16.20	19.81	22.59	19.44	25.31	28.66	25.89	27.93

*Subgroup size is too small for reliable statistical comparisons (less than 50 cases).

^aThe Electronics Aptitude Composite consists of the following ASVAB subtests: Arithmetic Reasoning, Electronics Information, General Science, and Mathematics Knowledge. Scores are based on percentile scale distribution.

^bSample sizes and population estimates for racial/ethnic groups and subcategories appear in Table C-2.

^cWhite includes all racial/ethnic groups other than black or Hispanic.

^dBlack does not include persons of Hispanic origin.

Table C-14

**Armed Services Vocational Aptitude Battery (ASVAB) Subtest
Scores of the 1980 Youth Population by Sex^a**

Sex	ASVAB Subtest									
	General Science	Arithmetic Reasoning	Word Knowledge	Paragraph Comprehension	Numerical Operations	Coding Speed	Auto & Shop Information	Mathematics Knowledge	Mechanical Comprehension	Electronics Information
Standard Score Range	20-67	25-67	20-62	20-63	20-63	23-75	21-65	29-71	22-67	21-67
MALES										
Median	52.	52.	53.	52.	48.	50.	53.	51.	52.	52.
Mean	51.32	51.73	50.75	50.59	47.58	49.87	51.44	52.59	51.15	51.52
Standard Deviation	10.09	10.47	10.32	10.03	10.75	9.78	9.77	11.12	9.73	9.86
FEMALES										
Median	48.	48.	53.	54.	50.	55.	40.	49.	42.	43.
Mean	47.89	48.89	50.87	52.37	49.58	54.06	40.94	51.08	43.85	44.33
Standard Deviation	8.94	9.82	9.77	9.18	10.44	9.99	6.75	10.34	7.79	8.53
TOTAL (N = 9173)										
Median	50.	49.	53.	53.	49.	53.	45.	49.	46.	47.
Mean	49.63	50.33	50.81	51.47	48.56	51.94	46.26	51.84	47.55	47.98
Standard Deviation	9.69	10.25	10.05	9.66	10.65	10.10	9.92	10.77	9.55	9.86

^aRestricted to persons in the sample born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

Table C-15

**Armed Services Vocational Aptitude Battery (ASVAB) Subtest Scores of the
1980 Youth Population by Racial/Ethnic Group^a**

Racial/Ethnic Group	ASVAB Subtest									
	General Science	Arithmetic Reasoning	Word Knowledge	Paragraph Comprehension	Numerical Operations	Coding Speed	Auto & Shop Information	Mathematics Knowledge	Mechanical Comprehension	Electronics Information
Standard Score Range	20-67	25-67	20-62	20-63	20-63	23-75	21-65	29-71	22-67	21-67
WHITE^b										
Median	52.	52.	54.	54.	51.	54.	47.	52.	49.	49.
Mean	51.66	52.29	53.00	53.30	50.31	53.54	48.20	53.50	49.39	49.97
Standard Deviation	8.60	9.77	8.47	8.41	9.74	9.40	9.29	10.54	9.05	9.05
BLACK^c										
Median	39.	39.	40.	42.	40.	45.	35.	42.	37.	37.
Mean	40.87	41.63	41.02	43.51	40.72	44.39	37.43	44.73	39.27	39.24
Standard Deviation	8.94	7.48	10.84	10.52	11.05	9.91	7.34	8.36	6.80	8.19
HISPANIC										
Median	42.	42.	44.	45.	43.	49.	39.	42.	39.	39.
Mean	42.61	44.03	43.91	45.17	43.17	47.69	40.48	45.92	41.84	41.40
Standard Deviation	10.67	9.18	11.18	11.26	11.42	10.60	9.99	9.93	9.10	10.05

^aRestricted to persons in the sample born between January 1, 1957 and December 31, 1962 (18 through 23 years at time of testing, July-October 1980).

^bWhite includes all racial/ethnic groups other than black or Hispanic.

^cBlack does not include persons of Hispanic origin.

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